

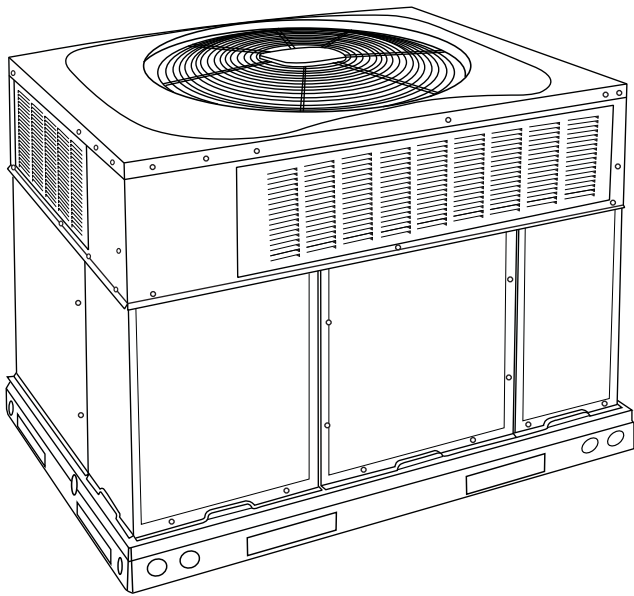
50VG-A

**PERFORMANCE™ 16 SEER 2-STAGE PACKAGED
AIR CONDITIONER SYSTEM WITH PURON® (R-410A)
REFRIGERANT
SINGLE AND THREE PHASE
2 TO 5 NOMINAL TONS (SIZES 24-60)**



Turn to the experts

Product Data



A09033

Fig. 1 - Unit 50VG

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- 15.0-16.0 SEER / 12.0-12.5 EER
- Factory-Installed TXV
- Multi-speed ECM Blower Motor - Standard
- Sound levels as low as 72dBA
- Two Stages of Cooling
- Dehumidification Feature
- Cabinet air leakage of 2.0% or less at .5 in. W.C. when tested in accordance with ASHRAE standard 193. (Low leak FIOP models only.)

FEATURES/BENEFITS

One-piece cooling unit with optional electric heater, low sound levels, easy installation, low maintenance, and dependable performance.

Puron Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems proving highly reliable, environmentally sound performance.

Easy Installation

Factory-assembled package is a compact, fully self-contained, electric cooling unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard cooling sizes with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base eliminates rust problems associated with ground level applications.

Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow and includes horizontal duct covers. Downflow operation is provided in the field to allow vertical ductwork connections. The basepan seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

Efficient operation High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of up to 16.0. (See page 4.)

Durable, dependable components

Scroll Compressors have 2 stages of cooling and are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Multi-speed ECM Blower Motor is standard on all 50VG.

Direct-drive PSC (Permanent Split Capacitor) condenser-fan motors are designed to help reduce energy consumption and provide for cooling operation down to 40°F (4.4°C) outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Thermostatic Expansion Valve - A hard shutoff, balance port TXV maintains a constant superheat at the evaporator exit (cooling cycle) resulting in higher overall system efficiency.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

High and Low Pressure Switches provide added reliability for the compressor.

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 72dBA. (See Page 4.)

Easy to service cabinets provide easy 3 panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with a mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19.05 mm) wide perimeter flange makes frame mounting on a rooftop easy.

Dehumidification Feature

This unit has independent fan speeds for low stage cooling and high stage cooling. In addition, 208/230 VAC models have the field-selectable capability to run an enhanced dehumidification ('DHUM') speed on high stage cooling (as low as 320CFM per ton). Coupled with the improved dehumidification associated with low stage cooling, the DHUM speed allows for a complete dehumidification solution independent of cooling stage. The dehumidification control must open the control circuit on humidity rise above the dehumidification set point.

NOTE: The enhanced dehumidification feature on high stage cooling does not support use of an economizer.

Standard horizontal metal duct covers with insulation come with the unit and cover the horizontal duct openings. These can be left in place if the units are converted to downflow.

Cabinets are constructed of heavyduty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator/electric heater compartment are insulated with foil-faced insulation, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain. An external drain is provided.

TABLE OF CONTENTS

FEATURES/BENEFITS 1

MODEL NUMBER NOMENCLATURE 3

AHRI CAPACITIES 4

PHYSICAL DATA 5

OPTIONS AND ACCESSORIES 6

BASE UNIT DIMENSIONS 7-8

ROOF CURB ACCESSORY 9

SELECTION PROCEDURE 10

PERFORMANCE DATA 11-23

TYPICAL PIPING AND WIRING 27

APPLICATION DATA 28

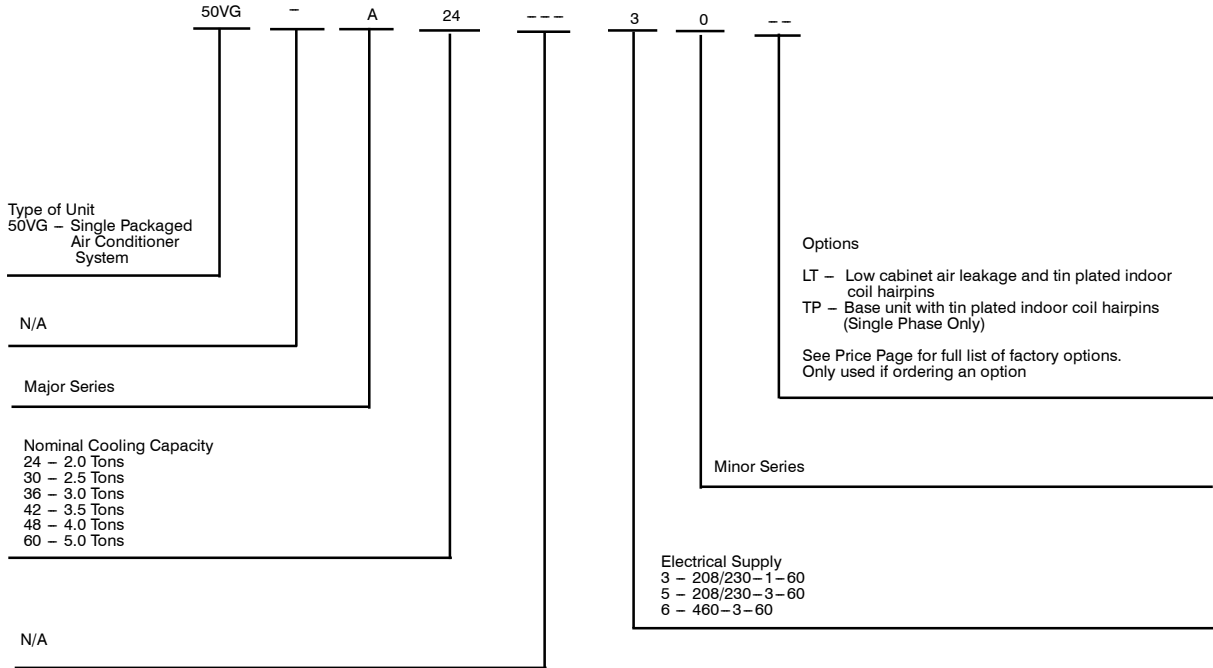
ELECTRICAL DATA 29-30

TYPICAL WIRING SCHEMATICS 31-36

CONTROLS 37

GUIDE SPECIFICATIONS 38-39

MODEL NUMBER NOMENCLATURE



50VG



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.



AHRI* CAPACITIES

Cooling Capacities and Efficiencies

Unit Model 50VG	Nominal Tons	Standard CFM (High / Low Stage)	Net Cooling Capacities - Btuh (High Stage)	EER @A**	SEER†
24	2	800 / 600	23000	12.0	15.0
30	2-1/2	1000 / 750	29000	12.0	15.0
36	3	1200 / 900	35400	12.5	16.0
42	3-1/2	1400 / 1050	42000	12.5	16.0
48	4	1600 / 1200	47500	12.3	16.0
60	5	1750 / 1200	57000	12.3	16.0

LEGEND

dB—Sound Levels (decibels)

db—Dry Bulb

SEER—Seasonal Energy Efficiency Ratio

wb—Wet Bulb

COP—Coefficient of Performance

* Air Conditioning, Heating & Refrigeration Institute.

**At "A" conditions—80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.

† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:

1. Ratings are net values, reflecting the effects of circulating fan heat.

Ratings are based on:

Cooling Standard: 80°F (26.7°C) db, 67°F wb (19.4°C) indoor entering—air temperature and 95°F db (35°C) outdoor entering—air temperature.

2. Before purchasing this appliance, read important energy cost and efficiency information available from AHRIdirectory.org.

50VG

A-WEIGHTED SOUND POWER LEVEL (dBA)

Model 50VG-A	Sound Ratings (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	73	60.0	62.5	68.5	68.5	64.0	60.0	53.0
30	77	57.5	67.0	73.5	72.0	67.0	61.0	52.5
36	73	62.5	65.5	67.5	68.0	65.5	60.0	52.5
42	73	60.5	63.5	68.0	68.0	66.0	60.5	53.0
48	72	60.0	63.5	66.0	67.0	63.5	58.5	49.5
60	75	69.0	67.0	69.0	68.0	65.0	61.5	54.0

NOTE: Tested in accordance with AHRI Standard 270 (not listed in AHRI).

PHYSICAL DATA

Physical Data-Unit 50VG

UNIT SIZE	24	30	36	42	48	60
NOMINAL CAPACITY (ton)	2	2-1/2	3	3-1/2	4	5
SHIPPING WEIGHT lb.	335	342	397	400	452	472
SHIPPING WEIGHT (kg)	152.0	155.1	180.1	181.4	205.0	214.1
COMPRESSORS	2-Stage Scroll					
Quantity	1					
REFRIGERANT (R-410A)						
Quantity lb	6.4	8.3	8.1	8.7	10.8	12.1
Quantity (kg)	2.9	3.8	3.7	3.9	4.9	5.5
REFRIGERANT METERING DEVICE	TXV					
OUTDOOR COIL						
Rows...Fins/in.	1...21	2...21	2...21	2...21	2...21	2...21
Face Area (sq ft)	13.6	13.6	13.6	13.6	19.4	21.4
OUTDOOR FAN						
Nominal Cfm	2500	2700	3000	3000	3300	3600
Diameter in.	24	24	26	26	26	26
Diameter (mm)	609.6	609.6	660.4	660.4	660.4	660.4
Motor Hp (Rpm)	1/10 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)
INDOOR COIL						
Rows...Fins/in.	3...17	3...17	3...17	3...17	3...17	3...17
Face Area (sq ft)	3.7	3.7	4.7	4.7	5.7	5.7
INDOOR BLOWER						
Nominal Low Stage Cooling Airflow (Cfm)	600	750	900	1050	1200	1200
Nominal High Stage Cooling Airflow (Cfm)	800	1000	1200	1400	1600	1750
Size in.	10x10	10x10	11x10	11x10	11x10	11x10
Size (mm.)	254x254	254x254	279.4x254	279.4x254	279.4x254	279.4x254
Motor HP (RPM)	1/2 (1050)	1/2 (1050)	3/4 (1000)	3/4 (1075)	1.0 (1075)	1.0 (1075)
HIGH-PRESSURE SWITCH (psig) Cut-out Reset (Auto)	650 +/- 15 420 +/- 25					
LOW-PRESSURE SWITCH (psig) cut-out Reset (auto)	50 +/- 7 95 +/- 7					
DUCT RETURN-AIR FILTERS†‡						
Throwaway Size in.	20x20x1	20x24x1	24x30x1	24x36x1		
Throwaway Size (mm)	508x508x25	508x610x25	610x762x25	610x914x25		

50VG

† Required filter sizes shown are based on the larger of the AHRI (Air Conditioning Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/minute for throwaway type or 450 ft/minute for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 in. W.C.

‡ If using accessory filter rack refer to the filter rack installation instructions for correct filter sizes and quantity.

Electric Heat Pressure Drop Tables (IN. W.C.)

Small Cabinet: 24-30

STATIC	CFM											
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
5 kW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07
10 kW	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.09	0.10	0.11
15 kW	0.00	0.00	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18
20 kW	0.00	0.00	0.02	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19

Large Cabinet: 36-60

STATIC	CFM														
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5 kW	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
10 kW	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
15 kW	0.00	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
20 kW	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16

OPTIONS AND ACCESSORIES

ITEM	DESCRIPTION	FACTORY INSTALLED OPTION	FIELD INSTALLED ACCESSORY
Coil Options	Base unit with tin plated indoor coil hairpins	X	
Compressor Start Kit	Compressor Start Kit assists compressor start-up by providing additional starting torque on single phase units only.		X
Corporate Thermostats	Thermostats provide control for the system heating and cooling functions.		X
Crankcase Heater	Crankcase Heater provides anti-floodback protection for low-load cooling applications.		X*
Economizer	Vertical Economizer with Jade Honeywell W7220 Controller, Honeywell communicating actuator, and dry bulb sensor. (Contact MicroMetl Customer Service at 1-800-662-4822 to order.)		X
	Horizontal Economizer with Jade Honeywell W7220 Controller, Honeywell communicating actuator, and dry bulb sensor. (Contact MicroMetl Customer Service at 1-800-662-4822 to order.)		X
Electric Heaters	Electric Heat Supplement		X
Filter Rack	Filter Rack features easy installation, serviceability, and high-filtering performance for vertical applications. Includes 1-in. filter.		X
Flat Roof Curb	14-in. (356 mm) Flat Roof Curb is available for roof mounted applications.		X
Low Ambient Kit	Low Ambient Kit (Motormaster II Control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F (-18°C) when properly installed.		X
Manual Outside Air Damper	Manual Outside Air Damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.		X
Square-to-Round Duct Transition Kit	Square-to-Round Duct Transition Kit enable 24-48 size units to be fitted to 14 in (356 mm) round ductwork.		X
Time Guard II	Automatically prevents the compressor from restarting for at least 4 minutes and 45 seconds after shutdown of the compressor. Not required when a corporate programmable thermostat is applied or with a RTU-MP control.		X
Low Cabinet Air Leakage	Cabinet air leakage of 2.0% or less at .5 in. W.C. when tested in accordance with ASHRAE standard 193.	X	
Dual Point Electric Heaters	Allows you to power the electric heater and unit contactor separately by having two individual field power supply circuits connected respectively.		X

*Refer to Price Page for application detail.

Electric Heaters

CATALOG ORDERING NO.	NOMINAL CAPACITY (kW)	FUSE QTY	USED WITH SIZES					
			24	30	36	42	48	60
ELECTRIC HEATERS (208/230 — SINGLE PHASE — 60 Hz)								
CPHEATER052B00	5.0	—	X	X	X	X	X	X
CPHEATER064B00	5.0	4	X	X	X	X	X	X
CPHEATER069B00	7.2	—	X	X	X	X	X	X
CPHEATER070B00	7.2	4	X	X	X	X	X	X
CPHEATER065B00	10.0	—	X	X	X	X		
CPHEATER050B00	10.0	4	X	X	X	X	X	X
CPHEATER051B00	15.0	4			X	X		
CPHEATER066B00	15.0	6			X	X	X	X
CPHEATER133B00	15.0	4		X				
CPHEATER053B00	20.0	6				X	X	X
CPHEATER054B00	20.0	6				X	X	X
ELECTRIC HEATERS (208/230 — THREE PHASE — 60 Hz)								
CPHEATER055B00	5.0	—		X	X	X	X	X
CPHEATER056B00	10.0	—		X	X	X	X	X
CPHEATER068B00	10.0	6			X	X	X	X
CPHEATER057B01	15.0	—		X	X	X	X	X
CPHEATER058B00	20.0	6		X	X	X	X	X
CPHEATER059B00	20.0	6				X	X	X
ELECTRIC HEATERS (460 — THREE PHASE — 60 Hz)								
CPHEATER061B00	10.0	—			X	X	X	X
CPHEATER062B00	15.0	—			X	X	X	X
CPHEATER063B00	20.0	—				X	X	X

NOTE: Electric heaters are rated at 240v. Refer to Multiplication Factors table for other voltages.

X = Approved combinations.

Minimum Airflow for Safe Electric Heater Operation (CFM)

SIZE	24	30	36	42	48	60
Cfm	800	1000	1200	1400	1600	1750

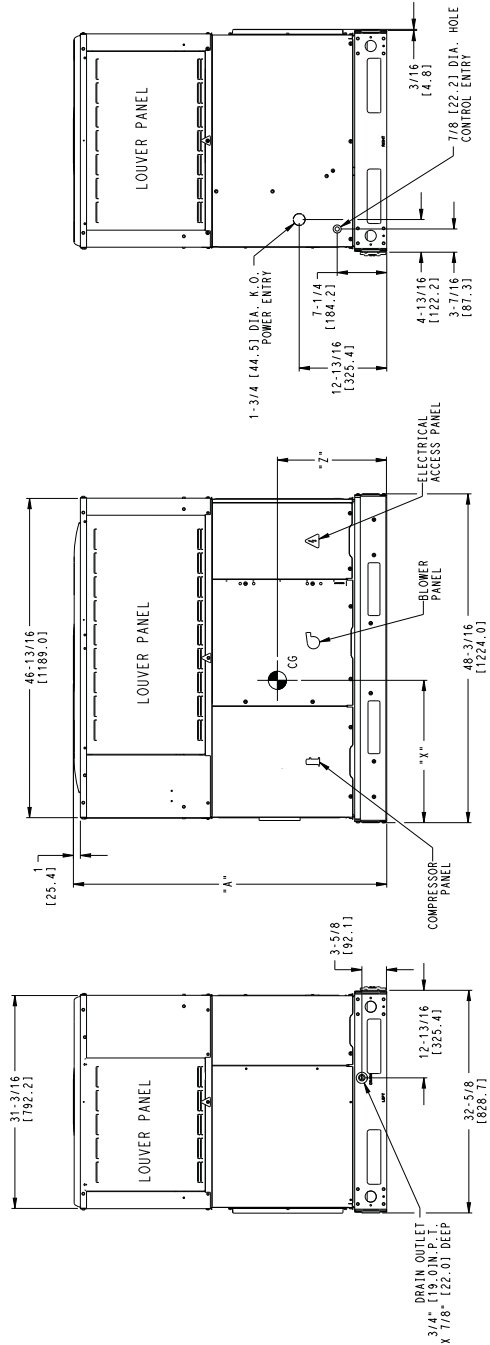
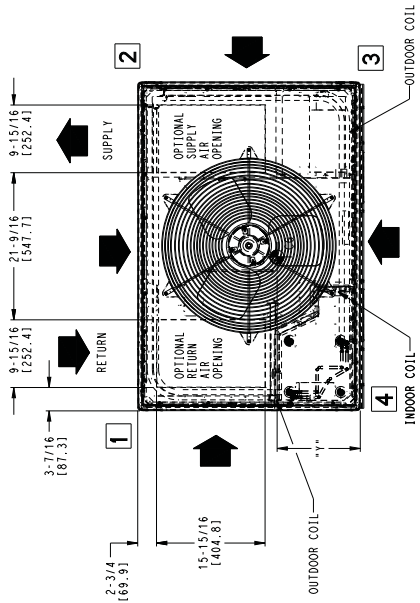
UNIT DIMENSIONS - 50VG 24-30

UNIT	ELECTRICAL CHARACTERISTICS		UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM			
	LB	KG	"A"	"X"	Y	Z				
50VG-A24---(31.0)	327	148.3	44-1/8	1121	20-1/2	520.7	15-3/4	400.1	16-5/8	422.3
50VG-A30---(37.5.0)	334	151.5	44-1/8	1121	20-1/2	520.7	15-3/4	400.1	17-3/8	441.3

UNIT	CORNER WEIGHT LB/KG								
	"1"	"2"	"3"	"4"					
50VG-A24---(31.0)	208/230	39.2	22.2	52.3	29.7	78.5	44.5	130.8	51.9
50VG-A30---(37.5.0)	208/230	40.1	22.7	53.4	30.3	80.2	45.5	133.6	53.0

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER

- REQUIRED CLEARANCES TO COMBUSTIBLE UNIT**
- TOP OF UNIT.....14 [355.6]
 - DUCT SIDE OF UNIT.....2 [50.8]
 - SIDE OPPOSITE DUCTS.....6 [152.4]
 - DUCT SIDE OPPOSITE DUCTS.....6 [152.4]
 - ELECTRICAL PANEL.....36 [914.4]
- NEC REQUIRED CLEARANCES**
- BETWEEN UNITS, POWER ENTRY SIDE.....1066.8 [27088.8]
 - UNIT AND UNGROUND SURFACES, POWER ENTRY SIDE.....36 [914.0]
 - UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE.....42 [1066.8]
- REQUIRED CLEARANCE FOR OPERATION AND SERVICING**
- EVAP. COIL ACCESS SIDE.....36 [914.0]
 - POWER ENTRY SIDE.....42 [1066.8]
 - EXCEPT FOR NEC REQUIREMENTS.....48 [1219.2]
 - UNIT TOP.....36 [914.0]
 - SIDE OPPOSITE DUCTS.....36 [914.0]
 - DUCT PANEL.....12 [304.8]
- *MINIMUM DISTANCES IF UNIT IS PLACED LESS THAN 12 (304.8) FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAY BE COMPROMISED.
- DIMENSIONS IN [] ARE IN MILLIMETERS



REAR VIEW

50VG500074

REV A

50VG

UNIT DIMENSIONS - 50VG 36-60

50VG

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT.			UNIT HEIGHT IN/MM			CENTER OF GRAVITY IN/MM			
		LB	KG	"A"	"X"	"Y"	"Z"				
50VG-A36---	208/230-1, 208/230-3-60, 460-3	389	176.4	44-3/4	1137	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
50VG-A42---	208/230-1, 208/230-3-60, 460-3	392	177.8	44-3/4	1137	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
50VG-A48---	208/230-1, 208/230-3-60, 460-3	444	201.4	50-3/4	1289	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
50VG-A60---	208/230-1, 208/230-3-60, 460-3	464	210.5	52-3/4	1340	20-1/4	514.4	17-1/2	444.5	18	457.2

UNIT	VOLTAGE	CORNER WEIGHTS LB/KG								
		"1"	"2"	"3"	"4"					
50VG-A36---	(3/5/6)10	208/230/460	46.7	26.5	62.2	35.3	93.4	32.9	155.6	61.8
50VG-A42---	(3/5/6)10	208/230/460	47.0	26.7	62.7	35.6	94.1	33.3	156.8	62.2
50VG-A48---	(3/5/6)10	208/230/460	53.3	30.2	71.0	40.3	106.6	60.4	177.6	70.5
50VG-A60---	(3/5/6)10	208/230/460	55.7	31.6	74.2	42.1	111.4	63.1	185.6	73.7

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	INCHES [MM]
TOP OF UNIT.....	14 [355.6]
DUCT SIDE OF UNIT.....	2 [50.8]
SIDE OPPOSITE DUCTS.....	14 [355.6]
BOTTOM OF UNIT.....	0 [0.0]
ELECTRICAL PANEL.....	36 [914.4]

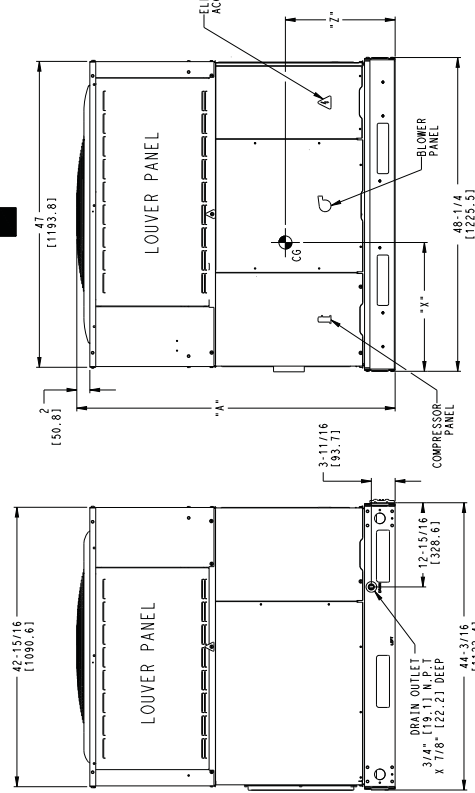
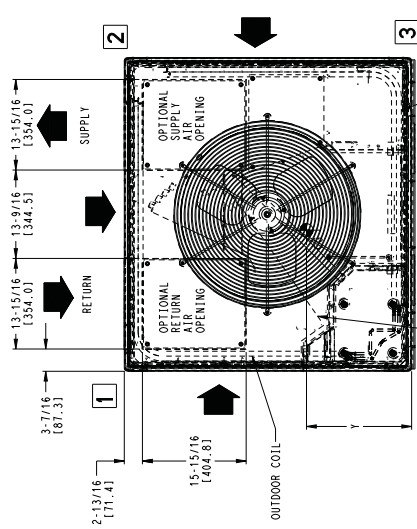
NEC. REQUIRED CLEARANCES.

	INCHES [MM]
BETWEEN UNITS, POWER ENTRY SIDE.....	.42 [1066.8]
UNIT AND UNGROUNDING SURFACES, POWER ENTRY SIDE.....	.36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDING SURFACES, POWER ENTRY SIDE.....	.42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	INCHES [MM]
EVAP. COIL ACCESS SIDE.....	.36 [914.0]
POWER ENTRY SIDE.....	.42 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP.....	.48 [1219.2]
SIDE OPPOSITE DUCTS.....	.36 [914.0]
DUCT PANEL.....	.12 [304.8]

*MINIMUM DISTANCES-IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED. DIMENSIONS IN [] ARE IN MM

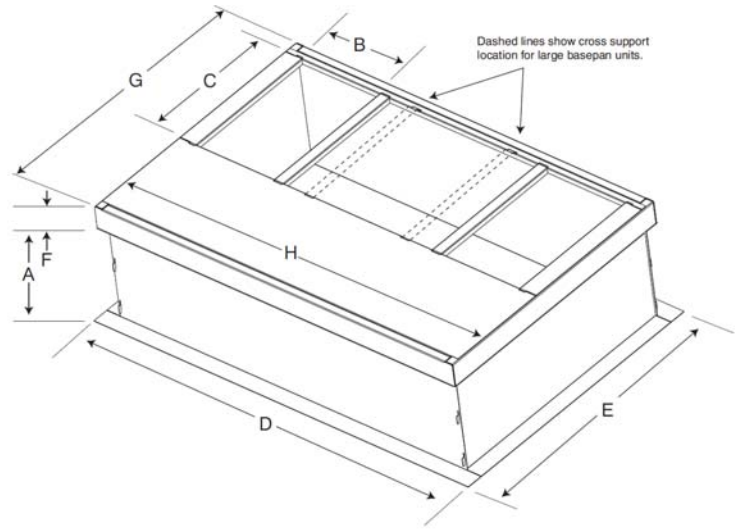
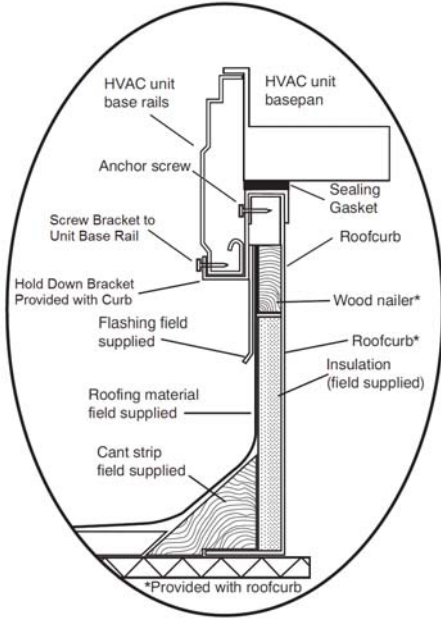


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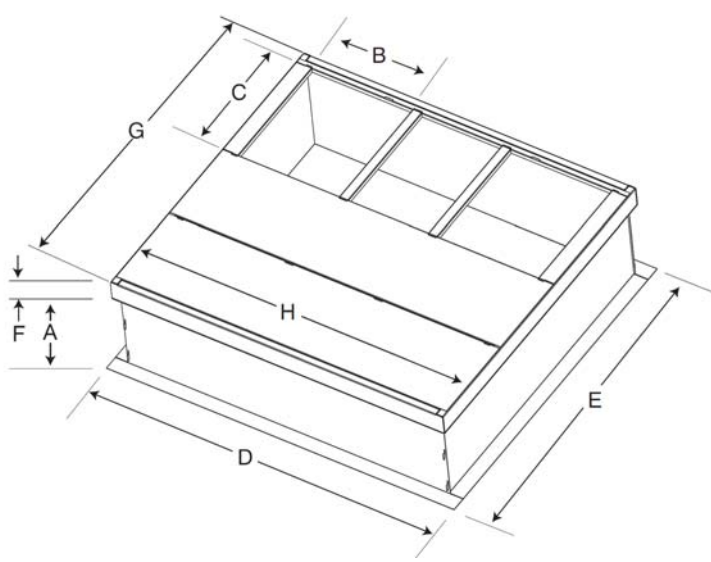
REV A
50VG500075

ROOF CURB ACCESSORY - 50VG 24-60

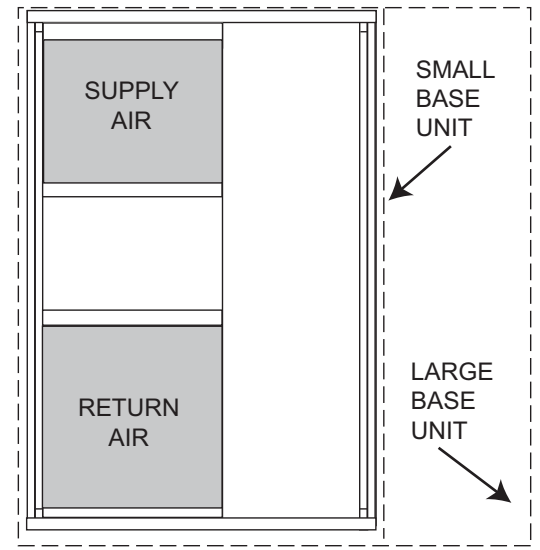
50VG



SMALL/COMMON CURB



LARGE CURB



UNIT PLACEMENT ON COMMON CURB

SMALL OR LARGE BASE UNIT

A180216

UNIT SIZE	CATALOG NUMBER	A IN. (mm)	B (small/common base) IN. (mm)*	B (large base) IN. (mm)*	C IN. (mm)	D IN. (mm)	E IN. (mm)	F IN. (mm)	G IN. (mm)	H IN. (mm)
Small or Large	CPRFCURB011B00	14 (356)	10 (254)	14 (356)	16 (406)	47.8 (1214)	32.4 (822)	2.7 (69)	30.6 (778)	46.1 (1170)
Large	CPRFCURB013B00	14 (356)	14 (356)				43.9 (1116)		42.2 (1072)	

* Part Number CPRFCURB011B00 can be used on both small and large basepan units. The cross supports must be located based on whether the unit is a small basepan or a large basepan.

- NOTES:
1. Roof curb must be set up for unit being installed.
 2. Seal strip must be applied, as required, to unit being installed.
 3. Roof curb is made of 16-gauge steel.
 4. Attach ductwork to curb (flanges of duct rest on curb).
 5. Insulated panels: 1-in. (25.4 mm) thick fiberglass 1 lb. density.

SELECTION PROCEDURE (WITH EXAMPLE)

1. Determine cooling and heating requirements at design conditions:

Given:

- Required Cooling Capacity (TC) 34,000 Btuh
- Sensible Heat Capacity (SHC) 24,000 Btuh
- Required Heating Capacity 12,500 Btuh
- Condenser Entering Air Temperature 95°F(35°C)
- Indoor-Air Temperature 80°F (26°C) edb
67°F (19°C) ewb
- Evaporator Air Quantity 1200 CFM
- External Static Pressure 0.20 IN. W.C.
- Electrical Characteristics 230-1-60

2. Select unit based on required cooling capacity.

Enter Net Cooling Capacities table at condenser entering temperature of 95°F (35°C), indoor air entering at 1200 cfm and 67°F (19°C) ewb (entering wet bulb). The unit will provide a total capacity of 34,200 Btuh and a SHC of 24,500 Btuh.

3. Select electric heat.

The required heating capacity is 15,000 Btuh.

Determine additional electric heat capacity in kW.

$$\frac{15,000 \text{ Btuh}}{3,414 \text{ Btuh/kW}} = 4.4 \text{ kW of heat required}$$

Enter the electric Heater Packages table for 208/240, single-phase, 50VG-A36 unit. The 5 kW heater at 240v most closely satisfies the heating required. To calculate kW at the 208v, multiply the heater kW by multiplication factor 0.75 found in the Wattage Multiplication Factors table.

$$5 \text{ kW} \times 0.75 = 3.75 \text{ kW}$$

$$3.75 \text{ kW} \times 3414 = 12802.50 \text{ Btuh}$$

4. Determine fan speed and power requirements at design conditions.

Before entering the air delivery tables, calculate the total static pressure required. From the given example, the Wet Coil Pressure Drop Table, and the Filter Pressure Drop Table:

External Static Pressure	0.200 IN. W.C.
Filter	0.000 IN. W.C.
Wet Coil Pressure Drop	<u>0.130 IN. W.C.</u>
Total Static Pressure	0.330 IN. W.C.

Enter the table for Wet Coil Air Delivery—horizontal discharge, 230. At 0.33 IN. W.C. ESP (external static pressure) and medium speed, the fan will deliver 1293 cfm. Adjusting for 208v, the motor delivers 114 cfm (deduct 10%).

5. Select unit that corresponds to power source available.

The Electrical Data Table shows that the unit is designed to operate at 208-1-60.

PERFORMANCE DATA

024 Low Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens
525	57 (13.8)	17.82	1.08	16.44	1.24	15.06	1.41	13.67	1.60	12.27	1.81	10.86	2.04						
	62 (16.6)	18.21	1.07	16.66	1.24	15.11	1.41	13.69	1.60	12.28	1.81	10.88	2.04						
	63* (17.2)	18.58	1.07	16.98	1.23	15.39	1.41	13.80	1.60	12.20	1.82	10.62	2.05						
	67 (19.4)	19.95	1.04	18.24	1.21	16.54	1.39	14.83	1.58	13.13	1.80	11.44	2.03						
	72 (22.2)	21.87	1.01	20.00	1.18	18.14	1.36	16.28	1.56	14.42	1.78	12.59	2.01						
	57 (13.8)	18.60	1.08	17.14	1.24	15.68	1.42	14.21	1.61	12.73	1.82	11.25	2.05						
	62 (16.6)	18.65	1.08	17.17	1.24	15.71	1.42	14.23	1.61	12.75	1.82	11.27	2.05						
600	63* (17.2)	18.96	1.08	17.31	1.24	15.67	1.42	14.03	1.61	12.39	1.83	10.77	2.06						
	67 (19.4)	20.34	1.05	18.58	1.22	16.82	1.40	15.06	1.60	13.31	1.81	11.59	2.04						
	72 (22.2)	22.29	1.02	20.35	1.19	18.43	1.37	16.52	1.57	14.61	1.79	12.73	2.02						
	57 (13.8)	19.26	1.09	17.73	1.25	16.20	1.42	14.66	1.62	13.11	1.83	11.57	2.06						
	62 (16.6)	19.29	1.09	17.75	1.25	16.22	1.42	14.68	1.62	13.13	1.83	11.59	2.06						
675	63* (17.2)	19.25	1.09	17.56	1.25	15.88	1.43	14.21	1.63	12.53	1.84	10.89	2.07						
	67 (19.4)	20.64	1.06	18.83	1.23	17.03	1.41	15.24	1.61	13.45	1.82	11.70	2.05						
	72 (22.2)	22.59	1.03	20.61	1.20	18.64	1.39	16.69	1.58	14.74	1.80	12.83	2.03						

See Legend and Notes on Page 23.



PERFORMANCE DATA (CONT)

024 High Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																		
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)			
		Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	
700	57 (13.8)	23.89	23.89	1.55	22.22	22.22	1.70	20.54	20.54	1.87	18.86	18.86	2.05	17.17	17.17	15.50	15.50	2.26	15.50	2.48
	62 (16.6)	24.55	21.58	1.55	22.62	20.64	1.71	20.72	19.69	1.87	18.89	18.89	2.05	17.20	17.20	15.52	15.52	2.26	15.52	2.48
	63* (17.2)	25.02	17.56	1.56	23.05	16.72	1.71	21.08	15.86	1.87	19.13	15.01	2.06	17.19	14.15	15.30	13.30	2.26	15.30	2.48
	67 (19.4)	26.85	18.20	1.57	24.72	17.34	1.73	22.61	16.48	1.89	20.50	15.61	2.07	18.42	14.75	16.39	13.89	2.27	16.39	2.49
	72 (22.2)	29.38	14.76	1.60	27.04	13.97	1.75	24.71	13.17	1.92	22.42	12.38	2.10	20.14	11.59	17.91	10.81	2.30	17.91	2.52
	57 (13.8)	24.94	24.94	1.57	23.16	23.16	1.73	21.38	21.38	1.90	19.59	19.59	2.08	17.81	17.81	16.04	16.04	2.28	16.04	2.51
	62 (16.6)	25.14	23.30	1.58	23.20	23.20	1.73	21.41	21.41	1.90	19.62	19.62	2.08	17.83	17.83	16.06	16.06	2.28	16.06	2.51
800	63* (17.2)	25.56	18.77	1.58	23.51	17.89	1.73	21.48	17.00	1.90	19.46	16.11	2.08	17.46	15.22	15.51	14.34	2.28	15.51	2.50
	67 (19.4)	27.40	19.50	1.60	25.19	18.60	1.75	23.00	17.70	1.92	20.83	16.80	2.10	18.68	15.89	16.60	15.00	2.30	16.60	2.52
	72 (22.2)	29.94	15.58	1.62	27.52	14.76	1.78	25.12	13.94	1.95	22.74	13.12	2.13	20.40	12.31	18.12	11.50	2.33	18.12	2.54
	57 (13.8)	25.82	25.82	1.60	23.95	23.95	1.76	22.08	22.08	1.92	20.20	20.20	2.11	18.33	18.33	16.48	16.48	2.31	16.48	2.53
	62 (16.6)	25.86	25.86	1.60	23.98	23.98	1.76	22.11	22.11	1.92	20.23	20.23	2.11	18.35	18.35	16.50	16.50	2.31	16.50	2.53
900	63* (17.2)	25.97	19.95	1.60	23.86	19.03	1.75	21.77	18.11	1.92	19.70	17.18	2.10	17.66	16.25	15.68	15.32	2.30	15.68	2.52
	67 (19.4)	27.81	20.76	1.62	25.54	19.83	1.77	23.30	18.89	1.94	21.07	17.95	2.12	18.88	17.01	16.76	16.07	2.32	16.76	2.54
	72 (22.2)	30.37	16.37	1.64	27.89	15.53	1.80	25.42	14.69	1.97	22.99	13.85	2.15	20.59	13.01	18.26	12.18	2.35	18.26	2.56

See Legend and Notes on Page 23.

PERFORMANCE DATA (CONT)

030 Low Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total Syst KW	Capacity MBtuh		Total Syst KW	Capacity MBtuh		Total Syst KW	Capacity MBtuh		Total Syst KW	Capacity MBtuh		Total Syst KW	Capacity MBtuh		Total Syst KW
CFM	EWB	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	
655	57 (13.8)	22.30	22.30	20.19	20.19	1.43	1.49	18.10	18.10	16.02	16.02	1.53	1.57	13.97	13.97	1.59	1.60	11.95	11.95
	62 (16.6)	22.91	20.51	17.72	17.72	1.43	1.48	18.23	15.01	16.05	16.05	1.53	1.57	13.99	13.99	1.59	1.60	11.97	11.97
	63* (17.2)	23.36	16.69	14.35	14.35	1.43	1.48	18.55	12.09	9.92	16.21	1.53	1.56	13.91	7.86	1.59	1.60	11.68	5.91
	67 (19.4)	25.19	17.36	14.93	14.93	1.41	1.46	19.99	12.60	10.36	17.47	1.51	1.55	15.00	8.21	1.58	1.59	12.60	6.19
	72 (22.2)	27.74	14.14	12.08	12.08	1.38	1.44	22.00	10.11	8.24	19.22	1.49	1.54	16.51	6.47	1.57	1.58	13.88	4.82
	57 (13.8)	23.33	23.33	21.08	21.08	1.45	1.50	18.87	18.87	16.68	16.68	1.54	1.58	14.51	14.51	1.60	1.61	12.38	12.38
	62 (16.6)	23.49	22.18	21.12	21.12	1.45	1.50	18.90	18.90	16.70	16.70	1.54	1.58	14.53	14.53	1.60	1.61	12.39	12.39
750	63* (17.2)	23.87	17.87	15.38	15.38	1.45	1.50	18.90	12.98	10.67	16.48	1.55	1.58	14.12	8.46	1.61	1.61	11.84	6.38
	67 (19.4)	25.72	18.62	16.04	16.04	1.43	1.48	20.35	13.55	11.16	17.75	1.53	1.57	15.21	8.87	1.59	1.60	12.76	6.70
	72 (22.2)	28.29	14.94	12.78	12.78	1.40	1.46	22.37	10.72	8.75	19.51	1.51	1.55	16.72	6.88	1.58	1.59	14.03	5.14
	57 (13.8)	24.14	24.14	21.79	21.79	1.47	1.52	19.48	19.48	17.18	17.18	1.56	1.59	14.92	14.92	1.61	1.62	12.71	12.71
	62 (16.6)	24.18	24.18	21.82	21.82	1.46	1.52	19.50	19.50	17.21	17.21	1.56	1.59	14.94	14.94	1.61	1.62	12.72	12.72
840	63* (17.2)	24.24	18.95	16.32	16.32	1.47	1.52	19.15	13.79	11.35	16.68	1.56	1.60	14.28	9.02	1.62	1.63	11.96	6.80
	67 (19.4)	26.09	19.78	17.06	17.06	1.45	1.50	20.60	14.43	11.90	17.95	1.55	1.59	15.36	9.47	1.61	1.62	12.87	7.16
	72 (22.2)	28.69	15.67	13.42	13.42	1.42	1.48	22.63	11.27	9.21	19.71	1.53	1.57	16.86	7.26	1.60	1.61	14.12	5.44

See Legend and Notes on Page 23.



PERFORMANCE DATA (CONT)

030 High Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																			
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)				
		Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens		
CFM	EWB	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total		
875	57 (13.8)	30.54	1.97	28.11	2.15	25.68	2.35	23.24	2.57	20.78	2.83	18.33	3.12	13.8	2.35	23.24	2.57	20.78	2.83	18.33	3.12
	62 (16.6)	31.60	1.98	28.82	2.15	26.06	2.35	23.34	2.57	20.81	2.83	18.36	3.12	16.6	2.35	23.34	2.57	20.81	2.83	18.36	3.12
	63* (17.2)	32.20	1.98	29.34	2.16	26.51	2.36	23.69	2.58	20.88	2.83	18.12	3.11	17.2	2.36	23.69	2.58	20.88	2.83	18.12	3.11
	67 (19.4)	34.66	2.01	31.55	2.19	28.49	2.38	25.45	2.60	22.42	2.85	19.45	3.13	19.4	2.38	25.45	2.60	22.42	2.85	19.45	3.13
	72 (22.2)	38.04	2.05	34.61	2.22	31.23	2.42	27.87	2.64	24.55	2.89	21.31	3.16	22.2	2.42	27.87	2.64	24.55	2.89	21.31	3.16
	57 (13.8)	31.92	2.01	29.32	2.19	26.74	2.39	24.16	2.61	21.55	2.87	18.97	3.15	13.8	2.39	24.16	2.61	21.55	2.87	18.97	3.15
	62 (16.6)	32.39	2.01	29.52	2.19	26.78	2.39	24.19	2.61	21.58	2.87	18.99	3.15	16.6	2.39	24.19	2.61	21.58	2.87	18.99	3.15
1000	63* (17.2)	32.92	2.02	29.95	2.19	27.01	2.39	24.10	2.61	21.21	2.86	16.33	3.14	17.2	2.39	24.10	2.61	21.21	2.86	16.33	3.14
	67 (19.4)	35.39	2.04	32.18	2.22	29.00	2.42	25.86	2.64	22.74	2.88	19.70	3.16	19.4	2.42	25.86	2.64	22.74	2.88	19.70	3.16
	72 (22.2)	38.82	2.08	35.26	2.26	31.76	2.46	28.30	2.67	24.87	2.92	21.55	3.19	22.2	2.46	28.30	2.67	24.87	2.92	21.55	3.19
	57 (13.8)	33.07	2.05	30.34	2.23	27.63	2.43	24.91	2.65	22.18	2.90	19.49	3.19	13.8	2.43	24.91	2.65	22.18	2.90	19.49	3.19
	62 (16.6)	33.13	2.05	30.38	2.23	27.67	2.43	24.94	2.65	22.21	2.90	19.51	3.19	16.6	2.43	24.94	2.65	22.21	2.90	19.51	3.19
	63* (17.2)	33.47	2.05	30.41	2.23	27.40	2.42	24.41	2.64	21.46	2.89	18.57	3.17	17.2	2.42	24.41	2.64	21.46	2.89	18.57	3.17
	67 (19.4)	35.96	2.08	32.64	2.25	29.39	2.45	26.17	2.67	22.98	2.91	19.90	3.19	19.4	2.45	26.17	2.67	22.98	2.91	19.90	3.19
72 (22.2)	39.41	2.12	35.75	2.29	32.16	2.49	28.60	2.71	25.11	2.95	21.72	3.22	22.2	2.29	28.60	2.71	25.11	2.95	21.72	3.22	

See Legend and Notes on Page 23.

PERFORMANCE DATA (CONT)

036 Low Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens
785	57 (13.8)	25.86	1.54	23.52	1.64	21.19	1.74	18.89	1.84	16.59	1.93	14.33	2.02						
	62 (16.6)	26.33	1.54	23.73	1.64	21.23	1.74	18.92	1.84	16.62	1.93	14.35	2.02						
	63* (17.2)	26.84	1.53	24.16	1.64	21.53	1.74	18.93	1.84	16.37	1.94	13.88	2.03						
	67 (19.4)	28.92	1.51	26.02	1.62	23.18	1.72	20.39	1.82	17.65	1.92	14.97	2.02						
	72 (22.2)	31.81	1.48	28.62	1.59	25.50	1.70	22.43	1.80	19.42	1.90	16.49	2.00						
	57 (13.8)	27.03	1.55	24.55	1.65	22.09	1.75	19.65	1.85	17.23	1.94	14.84	2.03						
	62 (16.6)	27.07	1.55	24.59	1.65	22.12	1.75	19.68	1.85	17.25	1.94	14.86	2.03						
900	63* (17.2)	27.41	1.55	24.64	1.65	21.93	1.75	19.25	1.85	16.63	1.95	14.08	2.04						
	67 (19.4)	29.51	1.53	26.52	1.63	23.59	1.74	20.72	1.84	17.90	1.94	15.16	2.03						
	72 (22.2)	32.43	1.50	29.14	1.61	25.92	1.71	22.76	1.82	19.67	1.92	16.67	2.01						
	57 (13.8)	27.98	1.56	25.37	1.66	22.80	1.76	20.25	1.86	17.72	1.95	15.24	2.04						
1010	62 (16.6)	28.02	1.56	25.41	1.66	22.83	1.76	20.28	1.86	17.75	1.95	15.25	2.04						
	63* (17.2)	27.84	1.56	24.99	1.67	22.22	1.77	19.49	1.87	16.82	1.96	14.28	2.05						
	67 (19.4)	29.94	1.54	26.88	1.65	23.89	1.75	20.96	1.85	18.09	1.95	15.32	2.04						
	72 (22.2)	32.87	1.51	29.50	1.62	26.21	1.73	22.99	1.83	19.84	1.93	16.79	2.02						

See Legend and Notes on Page 23.



PERFORMANCE DATA (CONT)

036 High Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens
CFM	EWB	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
1050	57 (13.8)	35.86	2.29	33.72	2.51	31.52	2.76	29.26	3.03	26.89	3.34	24.47	3.69	21.18	3.34	19.71	3.69	17.05	3.79
	62 (16.6)	36.94	2.30	34.42	2.52	31.86	2.76	29.31	3.03	26.93	3.34	24.51	3.69	21.18	3.34	19.71	3.69	17.05	3.79
	63* (17.2)	37.62	2.31	35.04	2.53	32.41	2.77	29.71	3.03	26.94	3.34	24.13	3.69	21.18	3.34	19.71	3.69	17.05	3.79
	67 (19.4)	40.43	2.34	37.63	2.56	34.79	2.80	31.86	3.07	28.87	3.37	25.86	3.71	22.07	3.37	20.58	3.71	17.05	3.79
	72 (22.2)	44.31	2.39	41.22	2.61	38.07	2.85	34.86	3.11	31.58	3.41	28.28	3.75	27.37	3.41	26.02	3.75	17.05	3.79
	57 (13.8)	37.44	2.33	35.15	2.55	32.81	2.80	30.39	3.07	27.88	3.38	25.31	3.73	22.75	3.38	20.58	3.73	17.05	3.79
	62 (16.6)	37.84	2.34	35.28	2.56	32.85	2.80	30.43	3.07	27.92	3.38	25.34	3.73	22.75	3.38	20.58	3.73	17.05	3.79
1200	63* (17.2)	38.44	2.34	35.75	2.56	33.01	2.80	30.22	3.07	27.35	3.37	24.48	3.71	22.75	3.37	21.21	3.71	17.05	3.79
	67 (19.4)	41.27	2.38	38.37	2.59	35.40	2.83	32.38	3.10	29.29	3.40	26.20	3.74	23.77	3.40	22.20	3.74	17.05	3.79
	72 (22.2)	45.20	2.43	41.98	2.64	38.71	2.88	35.39	3.15	32.00	3.45	28.62	3.79	28.44	3.45	26.03	3.76	17.05	3.79
	57 (13.8)	38.77	2.37	36.36	2.59	33.88	2.84	31.33	3.11	28.69	3.42	26.00	3.76	22.75	3.42	20.58	3.76	17.05	3.79
1350	62 (16.6)	38.82	2.37	36.40	2.59	33.92	2.84	31.37	3.11	28.72	3.42	26.03	3.76	22.75	3.42	20.58	3.76	17.05	3.79
	63* (17.2)	39.08	2.38	36.30	2.59	33.49	2.83	30.61	3.10	27.68	3.40	24.75	3.74	24.26	3.40	22.63	3.74	17.05	3.79
	67 (19.4)	41.92	2.41	38.92	2.63	35.87	2.86	32.77	3.13	29.62	3.43	26.47	3.77	25.40	3.43	23.74	3.77	17.05	3.79
	72 (22.2)	45.86	2.46	42.55	2.68	39.20	2.92	35.78	3.18	32.32	3.48	28.86	3.81	29.48	3.48	26.03	3.81	17.05	3.79
	57 (13.8)	38.77	2.37	36.36	2.59	33.88	2.84	31.33	3.11	28.69	3.42	26.00	3.76	22.75	3.42	20.58	3.76	17.05	3.79

See Legend and Notes on Page 23.

PERFORMANCE DATA (CONT)

042 Low Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens
915	57 (13.8)	30.96	1.93	28.67	1.98	26.33	2.01	23.93	2.04	21.48	2.05	19.01	2.03	17.22	2.02	14.77	2.01	12.28	2.04
	62 (16.6)	31.67	1.93	29.07	1.97	26.44	2.01	23.97	2.04	21.51	2.05	19.03	2.03	17.22	2.02	14.77	2.01	12.28	2.04
	63* (17.2)	32.30	1.92	29.63	1.97	26.89	1.98	24.12	2.04	21.31	2.05	18.51	2.03	16.26	2.02	13.75	2.00	11.24	2.03
	67 (19.4)	34.88	1.90	31.98	1.94	29.02	1.98	26.03	2.01	23.01	2.03	20.00	2.02	17.49	2.01	14.98	2.00	12.47	2.03
	72 (22.2)	38.48	1.87	35.25	1.91	31.99	1.95	28.70	1.98	25.38	1.99	22.08	1.98	19.53	1.97	16.98	1.96	14.48	1.99
	57 (13.8)	32.40	1.95	29.96	2.00	27.47	2.03	24.92	2.05	22.32	2.06	19.70	2.04	17.49	2.03	14.98	2.02	12.47	2.05
	62 (16.6)	32.52	1.95	30.01	1.99	27.51	2.03	24.96	2.05	22.35	2.06	19.73	2.04	17.49	2.03	14.98	2.02	12.47	2.05
1050	63* (17.2)	33.02	1.95	30.24	1.99	27.41	2.03	24.54	2.06	21.65	2.07	18.77	2.06	16.26	2.05	13.75	2.04	11.24	2.03
	67 (19.4)	35.63	1.93	32.61	1.97	29.55	2.01	26.46	2.03	23.35	2.04	20.26	2.03	17.77	2.02	15.27	2.01	13.28	2.04
	72 (22.2)	39.26	1.89	35.92	1.93	32.54	1.97	29.14	2.00	25.72	2.01	22.33	2.01	19.53	2.00	16.98	1.99	14.48	2.02
	57 (13.8)	33.57	1.98	31.00	2.01	28.38	2.05	25.70	2.07	22.99	2.07	20.25	2.07	17.77	2.06	15.27	2.05	13.28	2.04
	62 (16.6)	33.62	1.98	31.04	2.01	28.42	2.05	25.74	2.07	23.02	2.07	20.27	2.07	17.81	2.06	15.32	2.05	13.33	2.04
1180	63* (17.2)	33.55	1.98	30.68	2.02	27.77	2.05	24.85	2.08	21.90	2.09	18.99	2.07	16.00	2.06	13.00	2.05	11.00	2.04
	67 (19.4)	36.17	1.95	33.07	1.99	29.92	2.03	26.76	2.05	23.60	2.06	20.46	2.06	17.46	2.05	14.94	2.04	12.44	2.03
	72 (22.2)	39.84	1.92	36.39	1.96	32.92	1.99	29.44	2.02	25.95	2.02	22.49	2.02	19.37	2.01	16.30	2.00	13.31	2.01
	57 (13.8)	33.57	1.98	31.00	2.01	28.38	2.05	25.70	2.07	22.99	2.07	20.25	2.07	17.77	2.06	15.27	2.05	13.28	2.04

See Legend and Notes on Page 23.



PERFORMANCE DATA (CONT)

042 High Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																		
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)			
		Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	
CFM	EWB	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	
1225	57 (13.8)	44.10	44.10	2.67	40.87	40.87	2.95	37.59	37.59	3.27	34.28	34.28	3.63	30.95	30.95	27.68	27.68	4.03	4.03	4.47
	62 (16.6)	45.47	38.57	2.68	41.76	36.75	2.96	38.02	34.87	3.28	34.34	34.34	3.63	31.00	31.00	27.72	27.72	4.03	4.03	4.47
	63* (17.2)	46.30	31.46	2.69	42.48	29.82	2.97	38.64	28.16	3.28	34.81	26.49	3.64	31.02	24.81	27.34	23.17	4.03	4.03	4.46
	67 (19.4)	49.63	32.58	2.71	45.48	30.90	3.00	41.33	29.20	3.32	37.21	27.50	3.67	33.12	25.80	29.18	24.14	4.06	4.06	4.49
	72 (22.2)	54.17	26.44	2.75	49.61	24.90	3.04	45.06	23.34	3.36	40.53	21.79	3.72	36.05	20.23	31.74	18.73	4.11	4.11	4.54
1400	57 (13.8)	45.98	45.98	2.72	42.52	42.52	3.01	39.03	39.03	3.33	35.52	35.52	3.69	32.01	32.01	28.56	28.56	4.08	4.08	4.52
	62 (16.6)	46.52	41.52	2.73	42.71	42.37	3.01	39.08	39.08	3.33	35.57	35.57	3.69	32.04	32.04	28.59	28.59	4.08	4.08	4.52
	63* (17.2)	47.25	33.56	2.73	43.28	31.84	3.01	39.30	30.11	3.33	35.35	28.36	3.68	31.44	26.61	27.67	24.89	4.07	4.07	4.50
	67 (19.4)	50.58	34.83	2.76	46.29	33.07	3.04	42.00	31.30	3.36	37.75	29.52	3.72	33.55	27.75	29.50	26.00	4.11	4.11	4.54
	72 (22.2)	55.17	27.86	2.79	50.45	26.26	3.08	45.74	24.65	3.41	41.08	23.05	3.76	36.47	21.45	32.06	19.90	4.16	4.16	4.59
1575	57 (13.8)	47.54	47.54	2.77	43.89	43.89	3.05	40.22	40.22	3.38	36.54	36.54	3.74	32.86	32.86	29.26	29.26	4.13	4.13	4.57
	62 (16.6)	47.60	47.60	2.77	43.95	43.95	3.05	40.27	40.27	3.38	36.59	36.59	3.74	32.90	32.90	29.29	29.29	4.14	4.14	4.57
	63* (17.2)	47.97	35.58	2.77	43.88	33.79	3.05	39.80	31.99	3.37	35.76	30.17	3.72	31.76	28.34	27.94	26.51	4.12	4.12	4.55
	67 (19.4)	51.31	37.00	2.80	46.89	35.17	3.08	42.50	33.33	3.40	38.15	31.48	3.76	33.86	29.62	29.75	27.77	4.15	4.15	4.58
	72 (22.2)	55.92	29.22	2.84	51.07	27.57	3.12	46.25	25.93	3.45	41.47	24.28	3.81	36.77	22.64	32.27	21.05	4.20	4.20	4.63

See Legend and Notes on Page 23.

PERFORMANCE DATA (CONT)

048 Low Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens	Capacity MBtuh	Total Syst KW	Sens
1050	57 (13.8)	35.18	2.15	32.65	2.21	30.08	2.26	27.45	2.29	24.76	2.29	22.01	2.26	24.76	2.29	22.01	2.26	24.76	2.29
	62 (16.6)	35.89	2.14	30.42	2.21	30.13	2.26	27.49	2.29	24.80	2.29	22.04	2.25	24.80	2.29	22.04	2.25	24.80	2.29
	63* (17.2)	36.62	2.14	24.54	2.21	30.61	2.26	27.55	2.29	24.45	2.29	21.33	2.26	24.45	2.29	21.33	2.26	24.45	2.29
	67 (19.4)	39.58	2.11	36.35	2.19	33.07	2.24	29.78	2.28	26.42	2.28	23.06	2.25	26.42	2.28	23.06	2.25	26.42	2.28
	72 (22.2)	43.68	2.08	40.10	2.16	36.50	2.22	32.85	2.26	29.17	2.26	25.49	2.24	29.17	2.26	25.49	2.24	29.17	2.26
	57 (13.8)	36.76	2.18	34.07	2.25	31.32	2.29	28.53	2.32	25.68	2.32	22.77	2.28	25.68	2.32	22.77	2.28	25.68	2.32
	62 (16.6)	36.82	2.18	34.12	2.25	31.37	2.29	28.58	2.32	25.71	2.32	22.80	2.28	25.71	2.32	22.80	2.28	25.71	2.32
1200	63* (17.2)	37.37	2.18	34.28	2.25	31.15	2.30	27.99	2.32	24.79	2.32	21.59	2.29	24.79	2.32	21.59	2.29	24.79	2.32
	67 (19.4)	40.36	2.15	37.01	2.23	33.63	2.28	30.21	2.31	26.77	2.31	23.32	2.28	26.77	2.31	23.32	2.28	26.77	2.31
	72 (22.2)	44.51	2.12	40.80	2.20	37.07	2.26	33.30	2.29	29.52	2.29	25.74	2.26	29.52	2.29	25.74	2.26	29.52	2.29
	57 (13.8)	37.76	2.21	34.95	2.27	32.10	2.32	29.20	2.34	26.23	2.34	23.23	2.30	26.23	2.34	23.23	2.30	26.23	2.34
	62 (16.6)	37.81	2.21	35.00	2.27	32.15	2.32	29.24	2.34	26.27	2.34	23.26	2.30	26.27	2.34	23.26	2.30	26.27	2.34
	63* (17.2)	37.81	2.21	34.64	2.28	31.45	2.32	28.23	2.35	24.98	2.35	21.76	2.31	24.98	2.34	21.76	2.31	24.98	2.34
	67 (19.4)	40.80	2.19	37.39	2.26	33.93	2.31	30.46	2.33	26.96	2.33	23.47	2.29	26.96	2.33	23.47	2.29	26.96	2.33
72 (22.2)	44.98	2.15	41.19	2.23	37.37	2.28	33.55	2.31	29.70	2.31	25.85	2.28	29.70	2.31	25.85	2.28	29.70	2.31	

See Legend and Notes on Page 23.



PERFORMANCE DATA (CONT)

048 High Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens
1400	57 (13.8)	48.89	3.11	45.66	3.41	42.38	3.75	39.05	4.13	35.68	4.55	32.30	4.99	29.05	4.13	35.68	4.55	32.30	4.99
	62 (16.6)	50.28	3.12	46.51	3.42	42.75	3.76	39.11	4.13	35.73	4.55	32.34	4.99	39.11	4.13	35.73	4.55	32.34	4.99
	63* (17.2)	51.23	3.13	47.37	3.43	43.48	3.77	39.57	4.14	35.65	4.54	31.78	4.98	39.57	4.14	35.65	4.54	31.78	4.98
	67 (19.4)	55.12	3.16	50.93	3.46	46.72	3.80	42.50	4.17	38.27	4.58	34.10	5.02	42.50	4.17	38.27	4.58	34.10	5.02
	72 (22.2)	60.49	3.21	55.87	3.51	51.22	3.84	46.58	4.22	41.93	4.62	37.37	5.06	46.58	4.22	41.93	4.62	37.37	5.06
	57 (13.8)	51.01	3.18	47.56	3.48	44.07	3.83	40.53	4.20	36.95	4.62	33.37	5.06	40.53	4.20	36.95	4.62	33.37	5.06
	62 (16.6)	51.47	3.18	47.65	3.49	44.13	3.83	40.59	4.20	37.00	4.62	33.41	5.06	40.59	4.20	37.00	4.62	33.41	5.06
1600	63* (17.2)	52.30	3.19	48.28	3.49	44.24	3.83	40.20	4.20	36.15	4.60	29.26	5.04	40.20	4.20	36.15	4.60	29.26	5.04
	67 (19.4)	56.21	3.23	51.86	3.53	47.50	3.86	43.13	4.23	38.77	4.64	30.65	5.07	43.13	4.23	38.77	4.64	30.65	5.07
	72 (22.2)	61.65	3.27	56.85	3.57	52.04	3.91	47.24	4.28	42.45	4.68	23.52	5.11	47.24	4.28	42.45	4.68	23.52	5.11
	57 (13.8)	52.37	3.23	48.78	3.54	45.15	3.88	41.47	4.25	37.75	4.66	34.04	5.11	41.47	4.25	37.75	4.66	34.04	5.11
	62 (16.6)	52.45	3.23	48.85	3.54	45.21	3.88	41.52	4.26	37.79	4.66	34.08	5.11	41.52	4.26	37.79	4.66	34.08	5.11
	63* (17.2)	52.92	3.24	48.81	3.54	44.68	3.87	40.56	4.24	36.44	4.65	30.72	5.08	40.56	4.24	36.44	4.65	30.72	5.08
	67 (19.4)	56.86	3.27	52.41	3.57	47.95	3.91	43.50	4.28	39.06	4.68	32.25	5.12	43.50	4.28	39.06	4.68	32.25	5.12
72 (22.2)	62.33	3.32	57.41	3.62	52.50	3.95	47.61	4.32	42.73	4.72	24.55	5.15	47.61	4.32	42.73	4.72	24.55	5.15	

See Legend and Notes on Page 23.

PERFORMANCE DATA (CONT)

060 High Cool

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens
1750	57 (13.8)	58.66	3.81	55.57	4.17	52.33	4.58	48.92	5.04	45.32	5.57	41.58	6.16						
	62 (16.6)	59.85	3.82	51.25	4.17	52.51	4.58	48.99	5.05	45.37	5.57	41.63	6.16						
	63* (17.2)	60.83	3.82	41.43	4.18	53.16	4.58	49.10	5.04	44.88	5.56	40.58	6.13						
	67 (19.4)	65.32	3.86	61.22	4.22	57.00	4.63	52.61	5.10	48.03	5.62	43.40	6.20						
	72 (22.2)	71.52	3.90	67.01	4.27	62.34	4.69	57.48	5.17	52.44	5.70	47.35	6.29						
	57 (13.8)	60.99	3.90	57.68	4.26	54.22	4.68	50.58	5.15	46.74	5.68	42.79	6.27						
	62 (16.6)	61.23	3.90	57.75	4.26	54.29	4.68	50.64	5.15	46.80	5.68	42.83	6.27						
2000	63* (17.2)	61.92	3.91	57.99	4.26	53.95	4.67	49.76	5.13	45.40	5.65	41.00	6.22						
	67 (19.4)	66.43	3.94	62.19	4.30	57.80	4.72	53.27	5.19	48.55	5.71	43.81	6.29						
	72 (22.2)	72.71	3.98	68.00	4.35	63.17	4.78	58.16	5.26	52.95	5.79	47.73	6.37						
	57 (13.8)	62.91	3.99	59.42	4.35	55.76	4.77	51.93	5.25	47.89	5.78	43.74	6.37						
	62 (16.6)	62.99	3.99	59.49	4.36	55.83	4.77	51.99	5.25	47.94	5.78	43.79	6.37						
	63* (17.2)	62.73	3.99	58.69	4.35	54.54	4.76	50.24	5.22	45.80	5.73	41.35	6.30						
	67 (19.4)	67.27	4.02	62.89	4.39	58.40	4.80	53.75	5.27	48.94	5.80	44.15	6.38						
2250	72 (22.2)	73.56	4.06	68.73	4.43	63.76	4.86	58.61	5.34	53.29	5.87	47.96	6.46						

See Legend and Notes on Page 23.

PERFORMANCE DATA (CONT)

* At 75°F (24°C) entering dry bulb – Tennessee Valley Authority (TVA) rating conditions; all others at 80°F (27°C) dry bulb.

LEGEND

BF—Bypass Factor
 edb—Entering Dry—Bulb
 Ewb—Entering Wet—Bulb
 kW—Total Unit Power Input
 SHC—Sensible Heat Capacity (1000 Btuh)
 TC—Total Capacity (1000 Btuh) (net)
 rh—Relative Humidity

COOLING NOTES:

1. Ratings are net; they account for the effects of the evaporator—fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{Sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

$$t_{lwb} = \frac{\text{Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (} t_{lwb} \text{)}}{4.5 \times \text{cfm}} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

4. The SHC is based on 805 F (26.6°C) edb temperature of air entering evaporator coil. Below 80°F (26.6°C) edb, subtract (corr factor x cfm) from SHC. Above 80° F (26.6°C) edb, add (corr factor x cfm) to SHC.

Correction Factor = $1.10 \times (1 + \text{BF}) \times (\text{edb} - 80)$.

5. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

50VG

Multiplication Factors

HEATER KW RATING	VOLTAGE DISTRIBUTION V/3/60	MULTIPLICATION FACTOR
240	200 208 230 240	0.69 0.75 0.92 1.00

Dry Coil Air Delivery* - Horizontal and Downflow Discharge - Unit 50VG-A24-60

UNIT	MOTOR SPEED	WIRE COLOR	EXTERNAL STATIC PRESSURE (IN. W.C.)																		
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0									
50VG -- A24	Low ¹	Blue	CFM	689	597	489	352	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			BHP	0.08	0.06	0.06	0.05	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Med-Low	Pink	CFM	777	692	583	465	318	---	---	---	---	---	---	---	---	---	---	---	---	---
			BHP	0.09	0.10	0.10	0.11	0.12	---	---	---	---	---	---	---	---	---	---	---	---	---
	Medium ²	Red	CFM	921	829	754	663	582	485	371	---	---	---	---	---	---	---	---	---	---	---
			BHP	0.14	0.14	0.15	0.16	0.17	0.17	0.18	---	---	---	---	---	---	---	---	---	---	---
	Med-High	Orange	CFM	1229	1171	1105	1049	980	913	838	775	679	516	---	---	---	---	---	---	---	---
			BHP	0.28	0.30	0.30	0.31	0.32	0.33	0.34	0.34	0.34	0.34	0.33	---	---	---	---	---	---	---
	High	Black	CFM	1291	1206	1142	1081	1017	951	888	823	753	668	---	---	---	---	---	---	---	---
			BHP	0.31	0.32	0.33	0.34	0.34	0.35	0.35	0.36	0.37	0.37	0.37	---	---	---	---	---	---	---
Low	Blue	CFM	777	692	583	465	318	---	---	---	---	---	---	---	---	---	---	---	---	---	
		BHP	0.09	0.10	0.10	0.11	0.12	---	---	---	---	---	---	---	---	---	---	---	---	---	
Med-Low ¹	Pink	CFM	831	765	670	586	466	299	---	---	---	---	---	---	---	---	---	---	---	---	
		BHP	0.11	0.12	0.12	0.13	0.13	0.14	---	---	---	---	---	---	---	---	---	---	---	---	
Medium ²	Red	CFM	1139	1069	1012	937	870	786	724	626	512	381	---	---	---	---	---	---	---		
		BHP	0.22	0.23	0.24	0.24	0.25	0.26	0.27	0.27	0.27	0.28	---	---	---	---	---	---	---		
Med-High	Orange	CFM	1229	1171	1105	1049	980	913	838	775	679	516	---	---	---	---	---	---	---		
		BHP	0.28	0.30	0.30	0.31	0.32	0.33	0.33	0.34	0.34	0.34	0.33	---	---	---	---	---	---		
High	Black	CFM	1531	1460	1382	1301	1209	1114	1003	890	764	629	---	---	---	---	---	---	---		
		BHP	0.53	0.52	0.50	0.48	0.46	0.44	0.42	0.40	0.37	0.35	---	---	---	---	---	---	---		
Low	Blue	CFM	1097	971	823	747	669	636	558	513	456	412	---	---	---	---	---	---	---		
		BHP	0.12	0.11	0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.16	---	---	---	---	---	---	---		
Med-Low ¹	Pink	CFM	934	864	810	745	698	649	571	525	486	428	---	---	---	---	---	---	---		
		BHP	0.10	0.10	0.11	0.12	0.13	0.14	0.14	0.15	0.16	0.17	---	---	---	---	---	---	---		
Medium ²	Red	CFM	1251	1198	1149	1104	1066	1017	970	932	892	839	---	---	---	---	---	---	---		
		BHP	0.19	0.21	0.21	0.23	0.24	0.25	0.25	0.26	0.27	0.28	0.29	---	---	---	---	---	---		
Med-High	Orange	CFM	1451	1415	1372	1327	1287	1249	1212	1168	1130	1094	---	---	---	---	---	---	---		
		BHP	0.29	0.30	0.31	0.32	0.32	0.35	0.35	0.36	0.37	0.38	0.39	---	---	---	---	---	---		
High	Black	CFM	1466	1423	1384	1343	1308	1263	1219	1183	1145	1106	---	---	---	---	---	---	---		
		BHP	0.30	0.31	0.33	0.34	0.35	0.36	0.36	0.37	0.38	0.40	0.41	---	---	---	---	---	---		

See notes on page 25.

Dry Coil Air Delivery* - Horizontal and Downflow Discharge (CONT) - Unit 50VG-A24-60

UNIT	MOTOR SPEED	WIRE COLOR	EXTERNAL STATIC PRESSURE (IN. W.C.)										
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
50VG -- A42	Low	Blue	CFM	1097	971	823	747	669	636	558	513	456	412
			BHP	0.12	0.11	0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.16
	Med-Low ¹	Pink	CFM	1076	1026	972	918	872	827	771	714	666	611
			BHP	0.13	0.14	0.15	0.15	0.17	0.18	0.18	0.20	0.21	0.22
	Medium	Red	CFM	1251	1198	1149	1104	1066	1017	970	932	892	839
			BHP	0.19	0.21	0.21	0.23	0.24	0.25	0.26	0.27	0.28	0.29
	Med-High ²	Orange	CFM	1451	1415	1372	1327	1287	1249	1212	1168	1130	1094
			BHP	0.29	0.30	0.31	0.32	0.32	0.35	0.36	0.37	0.38	0.39
	High	Black	CFM	1633	1590	1552	1518	1483	1444	1406	1372	1340	1303
			BHP	0.41	0.43	0.44	0.45	0.47	0.48	0.49	0.50	0.51	0.53
Low ¹	Blue	CFM	1271	1229	1177	1121	1066	1027	974	942	887	839	
		BHP	0.19	0.20	0.21	0.23	0.24	0.25	0.26	0.27	0.28	0.29	
Med-Low	Pink	CFM	1340	1299	1240	1191	1139	1091	1050	1001	952	895	
		BHP	0.22	0.23	0.24	0.25	0.26	0.28	0.29	0.30	0.31	0.32	
Medium ²	Red	CFM	1686	1650	1617	1576	1544	1503	1468	1433	1393	1356	
		BHP	0.42	0.44	0.45	0.46	0.48	0.49	0.51	0.52	0.53	0.55	
Med-High	Orange	CFM	1854	1837	1781	1784	1720	1698	1655	1625	1578	1532	
		BHP	0.56	0.57	0.60	0.59	0.62	0.63	0.64	0.66	0.67	0.67	
High	Black	CFM	1934	1900	1855	1815	1778	1737	1695	1656	1606	1528	
		BHP	0.59	0.61	0.62	0.64	0.65	0.67	0.68	0.70	0.70	0.68	
Low ¹	Blue	CFM	1271	1229	1177	1121	1066	1027	974	942	887	839	
		BHP	0.19	0.20	0.21	0.23	0.24	0.25	0.26	0.27	0.28	0.29	
Med-Low	Pink	CFM	1340	1299	1240	1191	1139	1091	1050	1001	952	895	
		BHP	0.22	0.23	0.24	0.25	0.26	0.28	0.29	0.30	0.31	0.32	
Medium	Red	CFM	1686	1650	1617	1576	1544	1503	1468	1433	1393	1356	
		BHP	0.42	0.44	0.45	0.46	0.48	0.49	0.51	0.52	0.53	0.55	
Med-High ²	Orange	CFM	1878	1844	1805	1762	1731	1693	1655	1616	1570	1532	
		BHP	0.50	0.52	0.53	0.54	0.56	0.57	0.59	0.60	0.64	0.63	
High	Black	CFM	1934	1900	1855	1815	1778	1737	1695	1656	1606	1528	
		BHP	0.59	0.61	0.62	0.64	0.65	0.67	0.68	0.70	0.70	0.68	

* Air delivery values are without air filter and are for dry coil (See 50VG-A Wet Coil Pressure Drop table).

¹ Factory-shipped low stage cooling speed.

² Factory-shipped high stage cooling speed.

Note: Ductwork field-supplied air filter pressure drop and wet coil pressure drop to obtain external static pressure available for ducting.

Shaded areas indicate acceptable Dehum. Speeds (Dehum. Mode is High Stage Only, 208/230 VAC Models Only).



Filter Pressure Drop Table (IN. W.C.)

FILTER SIZE IN. (MM)	COOLING TONS	STANDARD CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1+12x20x1 (305x508x25+305x508x25)	2.0,	0.03	0.04	0.05	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	-	-	-	-
	2.5,																	
1200-1800 CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.0	-	-	-	-	0.04	0.05	0.06	0.06	0.06	0.06	0.07	0.08	0.08	0.09	0.10	0.11	0.12
	3.5,																	
	4.0																	
1500-2200 CFM 16x24x1+18x24x1 (406x610x25+457x356x25)	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	0.06	0.08	0.10

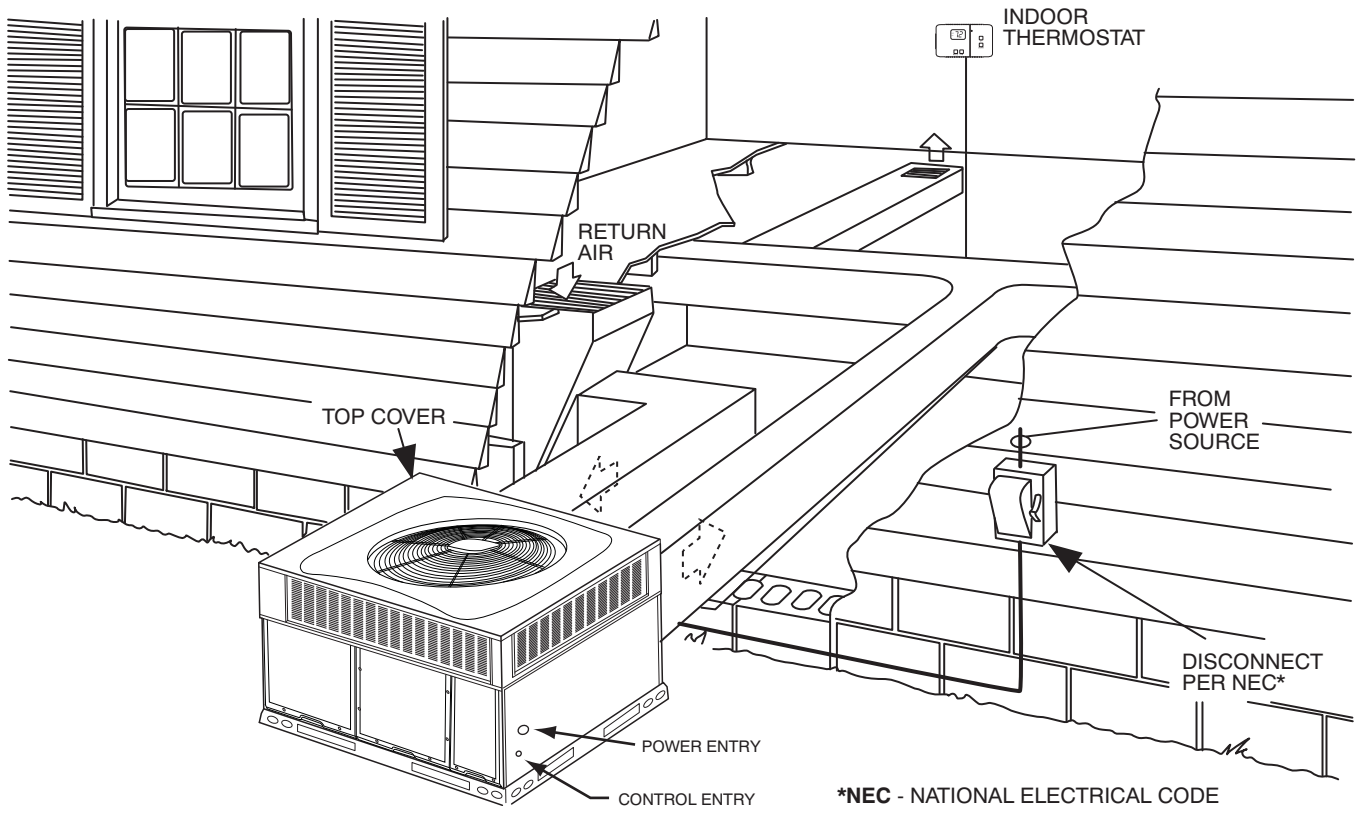
Wet Coil Pressure Drop (IN. W.C.)

UNIT SIZE	STANDARD CFM (SCFM)																
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
24	0.03	0.04	0.04	0.05	0.06												
30				0.05	0.06	0.07	0.08	0.11									
36				0.06	0.06	0.09	0.10	0.11	0.14								
42					0.05	0.05	0.06	0.07	0.08	0.08	0.09	0.09	0.11				
48							0.04	0.06	0.09	0.10	0.10	0.11	0.12	0.13	0.14		
60									0.06	0.06	0.07	0.01	0.08	0.09	0.10	0.12	0.13

Economizer with 1-in. Filter Pressure Drop (IN. W.C.)

FILTER SIZE IN. (MM)	COOLING TONS	STANDARD CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1+12x20x1 (305x508x25+305x508x25)	2.0,	-	-	0.08	0.09	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.13	0.14	-	-	-	-
	2.5,																	
1200-1800 CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.0	-	-	-	-	-	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.12	0.13	0.15	0.17	0.19
	3.5,																	
	4.0																	
1500-2200 CFM 16x24x1+18x24x1 (406x610x25+457x356x25)	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	0.15	0.17	0.18	0.20

TYPICAL PIPING AND WIRING



50VG

APPLICATION DATA

Condensate trap — A 2-in. (50.8 mm) condensate trap must be field supplied.

Ductwork — Secure downflow discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit with flanges.

To convert a unit to downflow discharge — Units are equipped with factory-installed inserts in the downflow openings. Removal of the inserts is similar to removing an electrical knock-out.

Maximum cooling airflow — To minimize the possibility of condensate blow-off from the evaporator, airflow through the units should not exceed 450 cfm per ton.

Minimum cooling airflow — Minimum cooling airflow is 350 cfm per ton.

Minimum ambient cooling operation temperature — All standard units have a minimum ambient operating temperature of 40°F (4°C). With accessory low ambient temperature kit, units can operate at temperatures down to 0°F (-17°C).

ELECTRICAL DATA

UNIT	NOMINAL	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	ELECTRIC HEAT		POWER SUPPLY	
		MIN	MAX	RLA	LRA	FLA	FLA	NOMINAL KW	FLA	MCA	MOCP
50VG-A24---30--	208/230-1-60	197	253	11.7	58.3	0.7	4.1	-/-	-/-	19.4	30
								3.8/5	18.1/20.8	27.8/31.1	30/35
								5.4/7.2	25.9/30	37.5/42.6	40/45
								7.5/10	36.1/41.7	50.3/57.3	60/60
50VG-A30---30--	208/230-1-60	197	253	13.1	73.0	1.2	4.1	-/-	-/-	21.7	30
								3.8/5	18.1/20.8	27.8/31.1	30/35
								5.4/7.2	25.9/30	37.5/42.6	40/45
								7.5/10	36.1/41.7	50.3/57.3	60/60
50VG-A30---50--	208/230-3-60	197	253	8.7	58.0	1.2	4.1	-/-	-/-	16.2	20
								3.8/5	10.4/12	18.1/20.1	20/25
								7.5/10	20.8/24.1	31.1/35.3	35/40
								11.3/15	31.2/36.1	44.1/50.3	45/60
50VG-A36---30--	208/230-1-60	197	253	15.3	83.0	1.2	6.0	-/-	-/-	26.3	40
								3.8/5	18.1/20.8	30.1/33.5	35/35
								5.4/7.2	25.9/30	39.9/45	40/45
								7.5/10	36.1/41.7	52.6/59.6	60/60
50VG-A36---50--	208/230-3-60	197	253	11.6	73.0	1.2	6.0	-/-	-/-	21.7	30
								3.8/5	10.4/12	20.5/22.5	25/25
								7.5/10	20.8/24.1	33.5/37.6	35/40
								11.3/15	31.2/36.1	46.5/52.6	50/60
50VG-A36---60--	460-3-60	414	506	5.7	38.0	0.53	3.2	-/-	-/-	10.8	15
								10	12	19	20
								15	18	26.5	30
								-/-	-/-	29.6	45
50VG-A42---30--	208/230-1-60	197	253	17.9	96.0	1.2	6.0	3.8/5	18.1/20.8	30.1/33.5	40/40
								5.4/7.2	25.9/30	39.9/45	40/45
								7.5/10	36.1/41.7	52.6/59.6	60/60
								11.3/15	54.2/62.5	75.3/85.6	80/90
50VG-A42---50--	208/230-3-60	197	253	14.2	88.0	1.2	6.0	15/20	72.2/83.3	97.8/111.6	100/125
								-/-	-/-	25.0	35
								3.8/5	10.4/12	24.1/24.1	35/35
								7.5/10	20.8/24.1	33.5/37.6	35/40
50VG-A42---60--	460-3-60	414	506	6.2	44.0	0.53	3.2	11.3/15	31.2/36.1	46.5/52.6	50/60
								15/20	41.4/47.9	59.3/67.4	60/70
								-/-	-/-	11.5	15
								10	12	19	20
50VG-A48---30--	208/230-1-60	197	253	21.2	104.0	1.2	7.6	15	18	26.5	30
								20	24.1	34.1	35
								-/-	-/-	35.3	50
								3.8/5	18.1/20.8	36.1/36.1	50/50
50VG-A48---50--	208/230-3-60	197	253	14.0	83.1	1.2	7.6	5.4/7.2	25.9/30	41.9/47	50/50
								7.5/10	36.1/41.7	54.6/61.6	60/70
								11.3/15	54.2/62.5	77.3/87.6	80/90
								15/20	72.2/83.3	99.8/113.6	100/125
50VG-A48---60--	460-3-60	414	506	6.4	41.0	0.53	4.0	-/-	-/-	26.3	40
								3.8/5	10.4/12	25.9/25.9	35/35
								7.5/10	20.8/24.1	35.5/39.6	40/40
								11.3/15	31.2/36.1	48.5/54.6	50/60
50VG-A60---30--	208/230-1-60	197	253	28.8	152.9	1.2	7.6	15/19.91	41.4/47.9	61.3/69.4	70/70
								-/-	-/-	12.5	15
								10	12	20	20
								15	18	27.5	30
50VG-A60---50--	208/230-3-60	197	253	16.2	110.0	1.2	7.6	20	24.1	35.1	40
								-/-	-/-	44.8	60
								3.8/5	18.1/20.8	41.8/41.8	60/60
								5.4/7.2	25.9/30	41.9/47	60/60
								7.5/10	36.1/41.7	54.6/61.6	60/70
								11.3/15	54.2/62.5	77.3/87.6	80/90
								15/20	72.2/83.3	99.8/113.6	100/125
								-/-	-/-	29.1	40
								3.8/5	10.4/12	28.8/28.8	40/40
								7.5/10	20.8/24.1	35.5/39.6	40/40
								11.3/15	31.2/36.1	48.5/54.6	50/60
								15/19.91	41.4/47.9	61.3/69.4	70/70

50VG

ELECTRICAL DATA (CONT)

UNIT	NOMINAL	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	ELECTRIC HEAT		POWER SUPPLY	
		MIN	MAX	RLA	LRA	FLA	FLA	NOMINAL kW	FLA	MCA	MOCP
50VG-A60---60--	460-3-60	414	506	7.6	52	0.53	4.0	-/-	-/-	14.0	20
								10	12	20	20
								15	18	27.5	30
								20	24.1	35.1	40

LEGEND

- FLA - Full Load Amps
- IDM - Inducer Motor
- IFM - Indoor Fan Motor
- LRA - Locked Rotor Amps
- MCA - Minimum Circuit Amps
- MOCP - Maximum Over Current Protection
- OFM - Outdoor Fan Motor
- RLA - Rated Load Amps

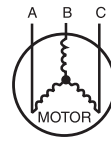
NOTES:

1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
3. Unbalanced 3-Phase Supply Voltage
Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance

% Voltage imbalance

$$= 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

EXAMPLE: Supply voltage is 230-3-60.



AB = 228 v
BC = 231 v
AC = 227 v

$$\begin{aligned} \text{Average Voltage} &= \frac{228 + 231 + 227}{3} \\ &= \frac{686}{3} \\ &= 229 \end{aligned}$$

Determine maximum deviation from average voltage.

(AB) 229 - 228 = 1 v
(BC) 231 - 229 = 2 v
(AC) 229 - 227 = 2 v

Maximum deviation is 2 v.

Determine percent of voltage imbalance

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{2}{229} \\ &= 0.8\% \end{aligned}$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

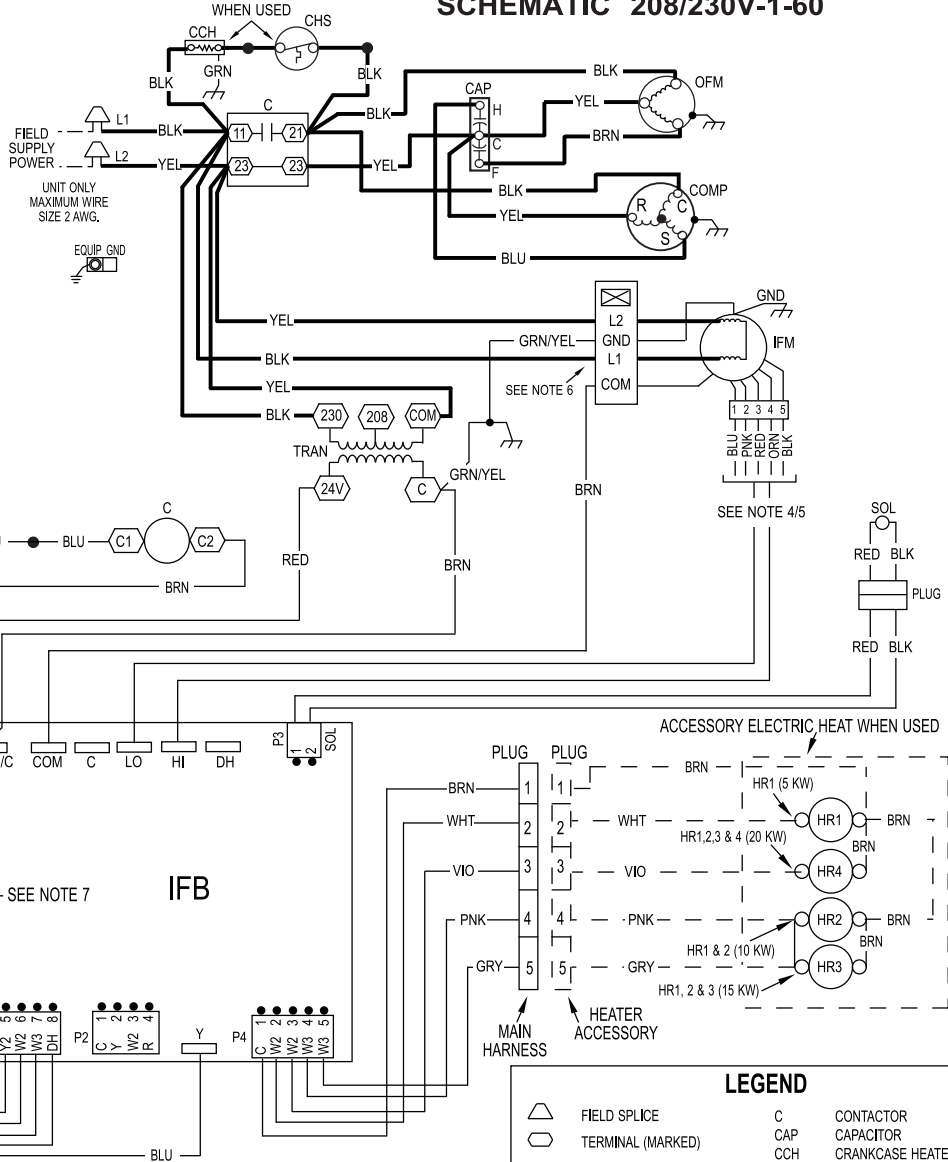
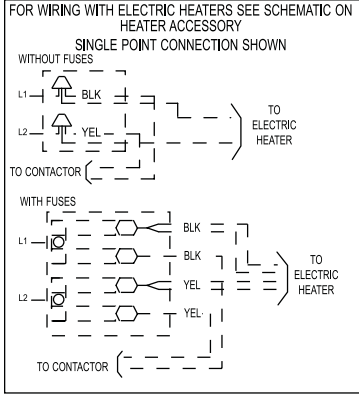
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CONNECTION WIRING SCHEMATIC 208/230-1-60

CONNECTION WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

SCHEMATIC 208/230V-1-60



NOTES:

1. IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED IT MUST BE REPLACED WITH THE SAME OR IT'S EQUIVALENT.
2. SEE PRE SALE LITERATURE FOR THERMOSTATS.
3. USE 75 DEGREES C COPPER CONDUCTORS FOR FIELD INSTALLATION.
4. REFER TO INSTALLATION INSTRUCTIONS FOR CORRECT SPEED SELECTION FOR IFM.
5. RELOCATION OF SPEED TAPS MAY BE REQUIRED WHEN USING FIELD INSTALLED ELECTRIC HEATERS. CONSULT INSTALLATION INSTRUCTIONS TO DETERMINE CORRECT SPEED TAP SETTING.
6. "DO NOT DISCONNECT PLUG UNDER LOAD".
7. THIS FUSE IS MANUFACTURED BY LITTLE FUSE, P/N 287003.

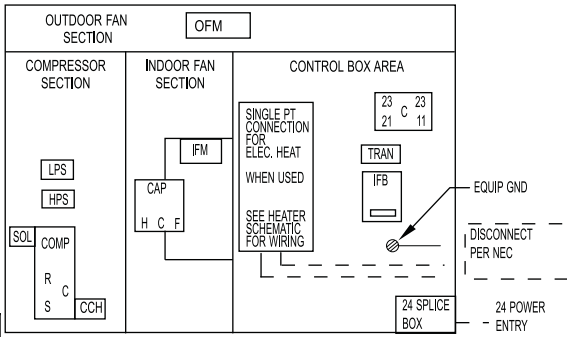
50VG

LADDER WIRING DIAGRAM 208/230-1-60

LADDER WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

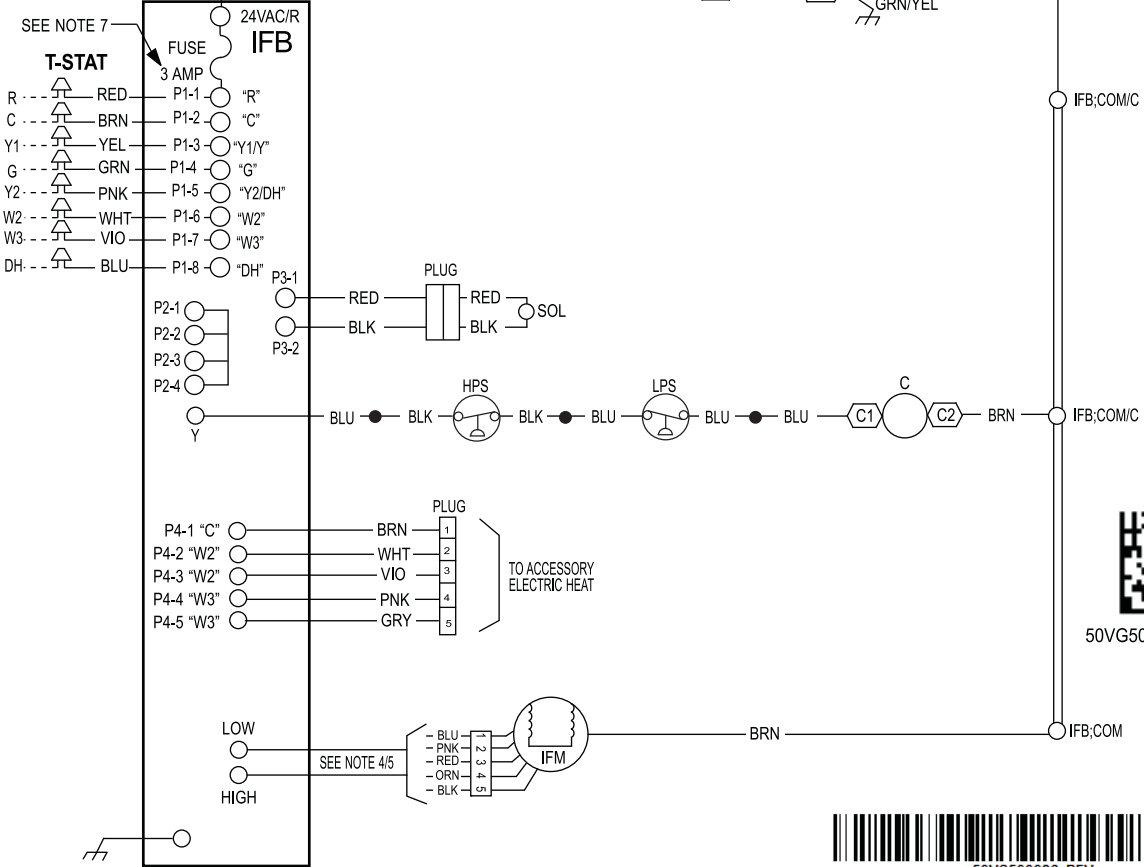
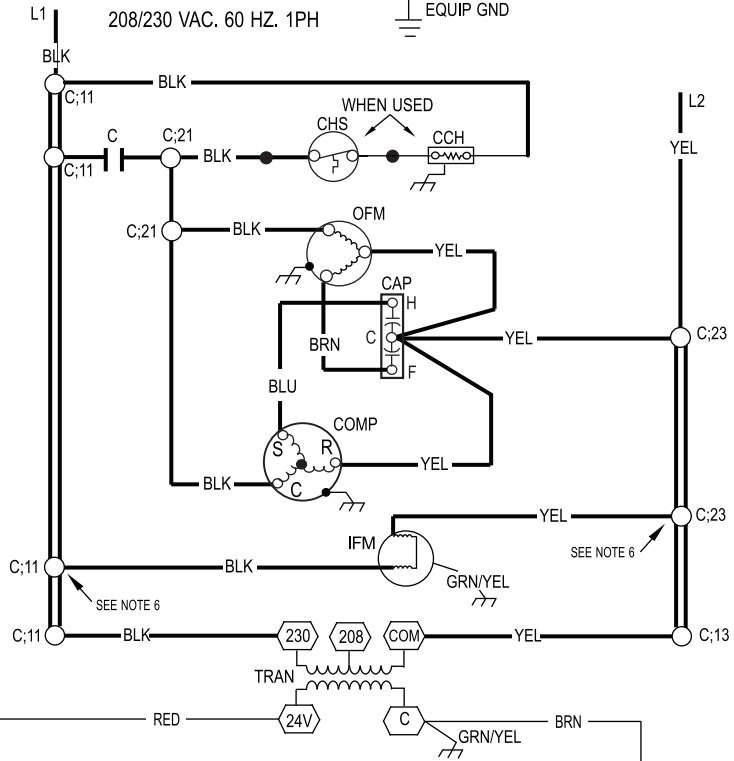
UNIT COMPONENT ARRANGEMENT



USE COPPER CONDUCTORS ONLY

FIELD SUPPLY

208/230 VAC. 60 HZ. 1PH



50VG



50VG500036 REV. -

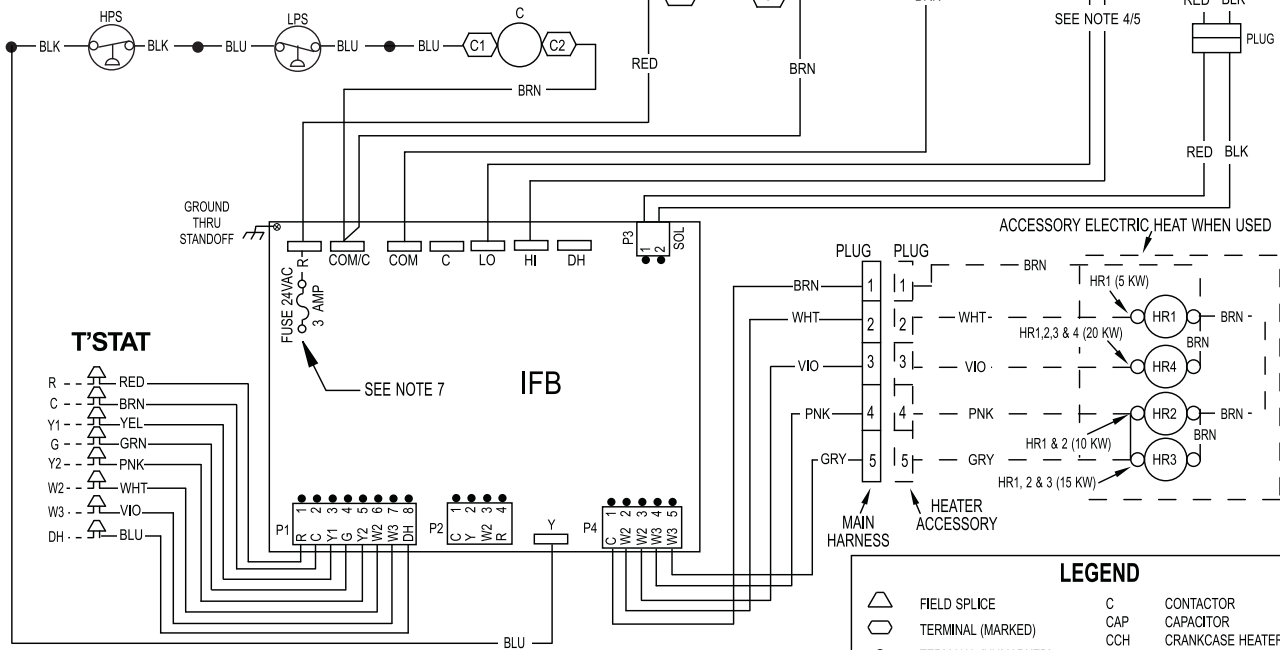
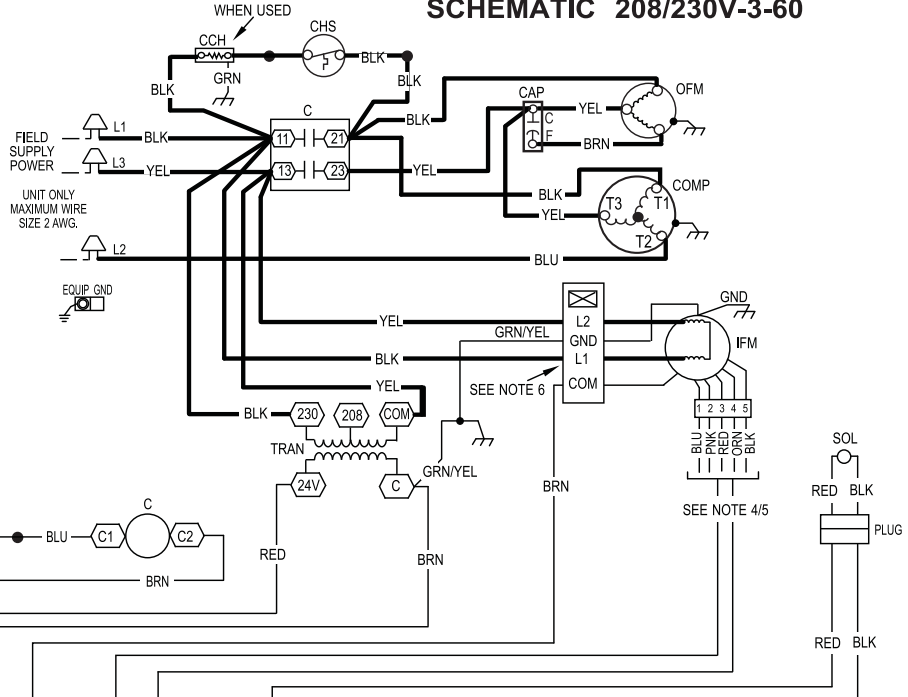
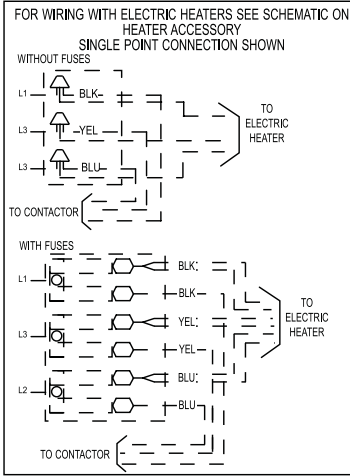
A12573

CONNECTION WIRING DIAGRAM 208/230-3-60

CONNECTION WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

SCHEMATIC 208/230V-3-60



NOTES:

- IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED IT MUST BE REPLACED WITH THE SAME OR IT'S EQUIVALENT.
- SEE PRE SALE LITERATURE FOR THERMOSTATS.
- USE 75 DEGREES C COPPER CONDUCTORS FOR FIELD INSTALLATION.
- REFER TO INSTALLATION INSTRUCTIONS FOR CORRECT SPEED SELECTION FOR IFM.
- RELOCATION OF SPEED TAPS MAY BE REQUIRED WHEN USING FIELD INSTALLED ELECTRIC HEATERS. CONSULT INSTALLATION INSTRUCTIONS TO DETERMINE CORRECT SPEED TAP SETTING.
- "DO NOT DISCONNECT PLUG UNDER LOAD".
- THIS FUSE IS MANUFACTURED BY LITTLE FUSE, P/N 287003.

LEGEND			
	FIELD SPLICE	C	CONTACTOR
	TERMINAL (MARKED)	CAP	CAPACITOR
	TERMINAL (UNMARKED)	CCH	CRANKCASE HEATER
	SPLICE	CHS	CRANKCASE HEATER SWITCH
	SPLICE (MARKED)	COMP	COMPRESSOR MOTOR
	FACTORY LO VOLTAGE	CTD	COMPRESSOR TIME DELAY
	FIELD CONTROL WIRING	DH	DEHUM
	FIELD POWER WIRING	GND	GROUND
	ACCESSORY OR OPTIONAL WIRING	HPS	HIGH PRESSURE SWITCH
	FACTORY HI VOLTAGE	HR	HEATER RELAY
		IFB	INDOOR FAN BOARD
		IFM	INDOOR FAN MOTOR
		LPS	LOW PRESSURE SWITCH
		OPM	OUTDOOR FAN MOTOR
		SOL	COMPRESSOR SOLENOID
		TRAN	TRANSFORMER
		T-STAT	THERMOSTAT

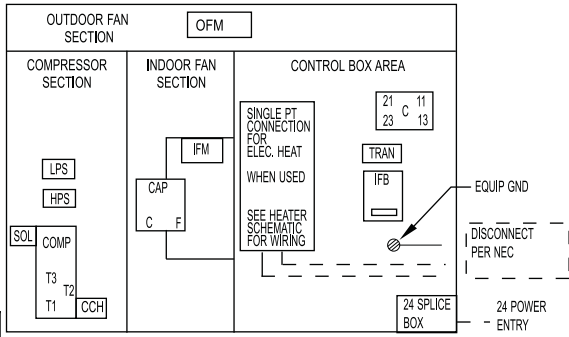
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LADDER WIRING DIAGRAM 208/230-3-60

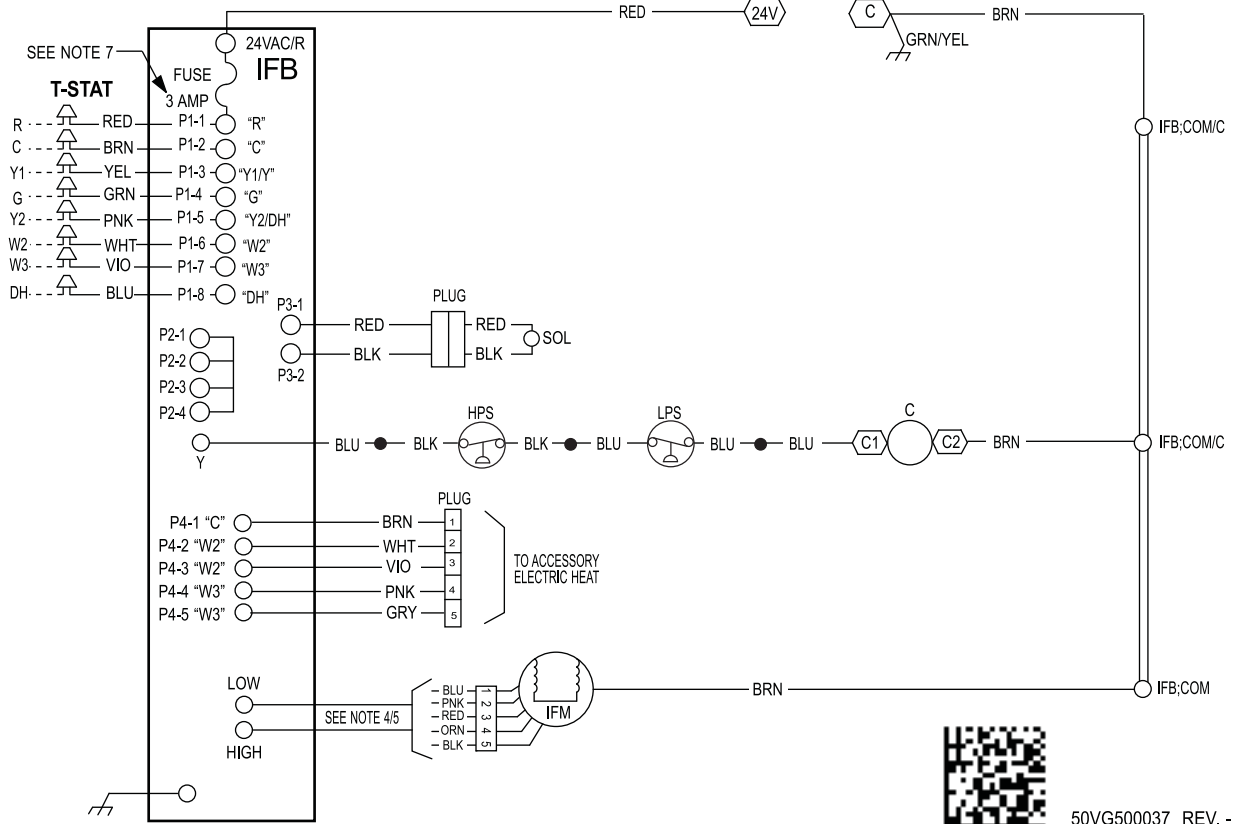
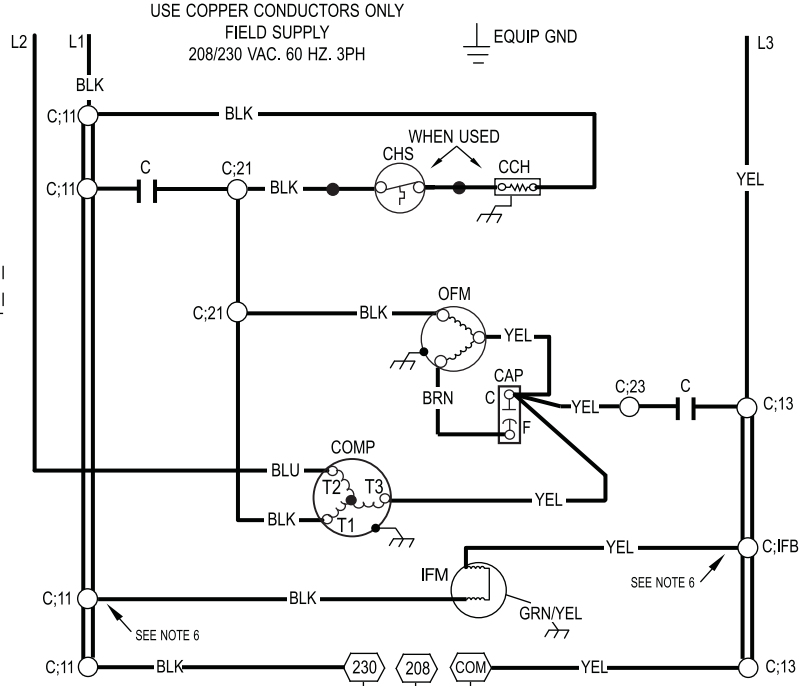
LADDER WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

UNIT COMPONENT ARRANGEMENT



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50VG500037 REV. -

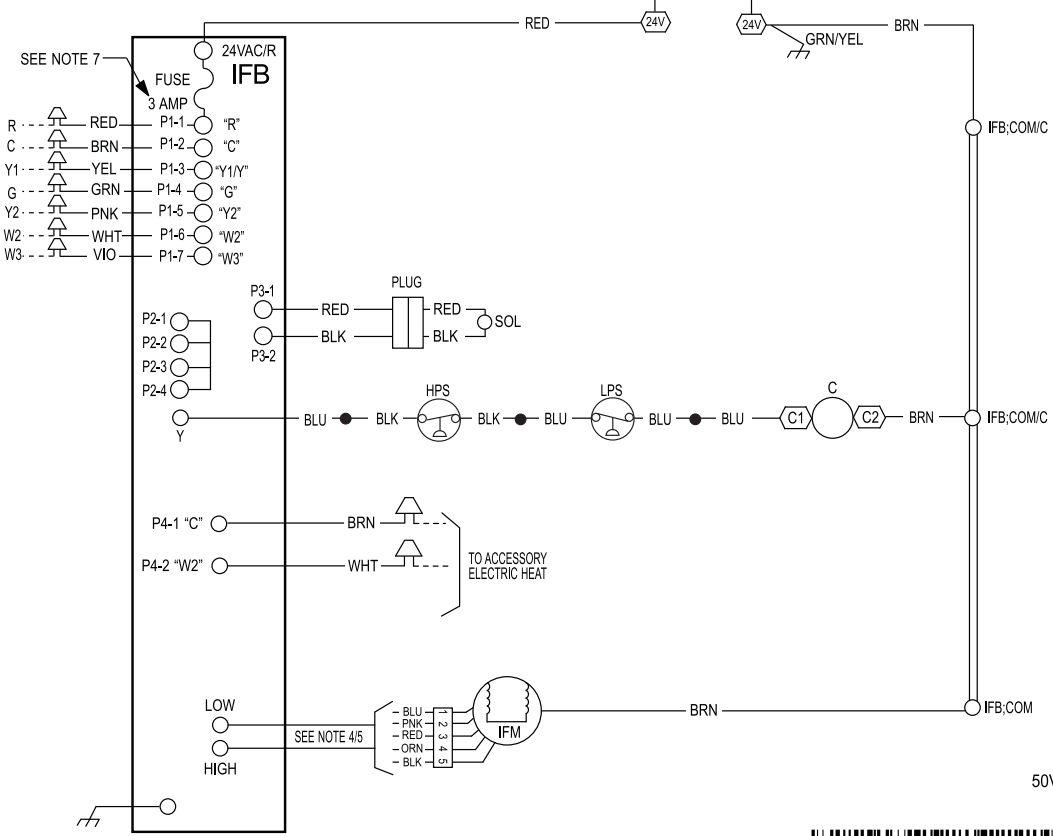
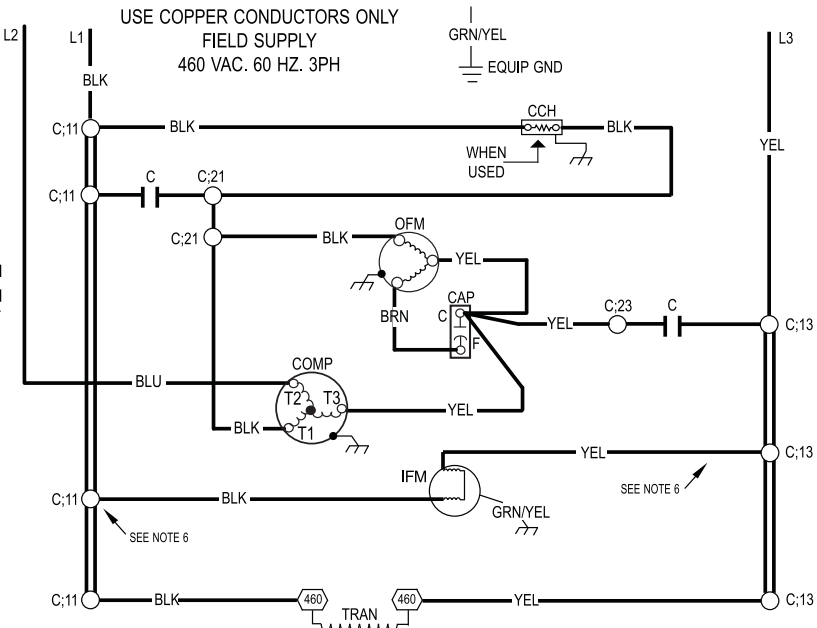
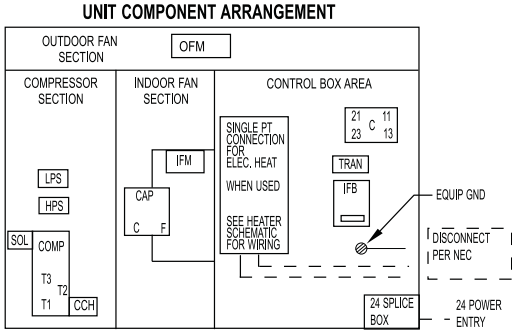
A12575

LADDER WIRING DIAGRAM 460-3-60

LADDER WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

50VG



50VG500038 REV. -



A12577

CONTROLS

COOLING SEQUENCE OF OPERATION

- a. Continuous Fan
 - (1.) Thermostat closes circuit R to G energizing the blower motor for continuous fan. The indoor fan is energized on low speed.
- b. Cooling Mode
 - (1.) Low Stage: Thermostat closes R to G, R to Y1. The compressor and indoor fan are energized on low speed. The outdoor fan is also energized
 - (2.) High Stage: Thermostat closes R to G, R to Y1, R to Y2. The compressor and indoor fan are energized on high speed. The outdoor fan is also energized.
- c. Electric Heating Mode
 - (1.) Thermostat closes circuit R to W2 or W3, and R to G. There are no on or off delays.

NOTE: On units with a Time Guard® II device: Once the compressor has started and then stopped, it cannot be restarted again until 5 minutes have elapsed.

GUIDE SPECIFICATIONS

Packaged Air Conditioner System Constant Volume Application HVAC Guide Specifications

Size Range: **2 to 5 Tons, Nominal Cooling**

Model Number: 50VG-A

Part 1 — General

SYSTEM DESCRIPTION

Outdoor rooftop mounted or ground mounted, electric cooling unit utilizing a hermetic 2-stage scroll compressor for cooling duty. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Condenser fan/coil section shall have a draw-thru design with vertical discharge for minimum sound levels.

QUALITY ASSURANCE

- A. Unit shall be rated in accordance with AHRI Standards 210/240 and 270.**
- B. Unit shall be designed in accordance with UL Standard 1995.**
- C. Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.**
- D. Unit shall be UL listed and c-UL certified as a total package for safety requirements.**
- E. Roof curb shall be designed to conform to NRCA Standards.**
- F. Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.**
- G. Cabinet insulation shall meet ASHRAE Standard 62P.**

DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled per manufacturer's recommendations.

Part 2 — Products

EQUIPMENT

A. General:

Factory-assembled, single-piece, heating and cooling unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge with R-410A refrigerant, and special features required prior to field start-up.

B. Unit Cabinet:

- 1. Unit cabinet shall be constructed of phosphated, zinc-coated, pre-painted steel capable of with-standing 500 hours in salt spray.
- 2. Normal service shall be through a single removable cabinet panel.
- 3. The unit shall be constructed on a rust proof unit base that has an externally trapped, integrated sloped drain.
- 4. Evaporator fan compartment top surface shall be insulated with a minimum 1/2-in. (12.7 mm) thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The evaporator wall sections will be insulated with a minimum semi-rigid foil-faced board capable of being wiped clean. Aluminum foil-faced fiberglass insulation shall be used in the entire indoor air cavity section.
- 5. Unit shall have a field-supplied condensate trap.

C. Fans:

- 1. The evaporator fan shall be a multi-speed ECM Blower Motor.
- 2. Fan wheel shall be made from steel, be double-inlet type with forward curved blades with corrosion resistant finish. Fan wheel shall be dynamically balanced.

- 3. Condenser fan shall be direct drive propeller type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.

D. Compressor:

- 1. Fully hermetic compressors with factory-installed vibration isolation.
- 2. 2-Stage scroll compressor shall be standard on all units.

E. Coils:

Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. Tube sheet openings shall be belled to prevent tube wear.

F. Refrigerant Components:

Refrigerant expansion device shall be of the TXV (thermostatic expansion valve) type.

G. Filters:

Filter section shall consist of field-installed, throwaway, 1-in. (25 mm) thick fiberglass filters of commercially available sizes.

H. Controls and Safeties:

- 1. Unit controls shall be complete with a self-contained low voltage control circuit.
- 2. Compressors shall incorporate a solid-state compressor protector that provides reset capability.

I. Operating Characteristics:

- 1. Unit shall be capable of starting and running at 125°F (51°C) ambient outdoor temperature per maximum load criteria of AHRI Standard 210.
- 2. Compressor with standard controls shall be capable of operation down to 40°F (4°C) ambient outdoor temperature.
- 3. Units shall be provided with fan time delay to prevent cold air delivery before the heat exchanger warms up.
- 4. Unit shall be provided with 90-second fan time delay after the thermostat is satisfied.

J. Electrical Requirements:

All unit power wiring shall enter the unit cabinet at a single location.

K. Motors:

- 1. Compressor motors shall be of the refrigerant-cooled type with line-break thermal and current overload protection.
- 2. All fan motors shall have permanently lubricated bearings, and inherent, automatic reset, thermal overload protection.

L. Special Options/Kits Available:

- 1. Coil Options:
 - Base unit with tin plated indoor coil hairpins.
- 2. Compressor Start Kit (single phase units only):
 - Shall provide additional starting torque for single-phase compressors.
- 3. Corporate Thermostat:
 - To provide for one-stage heating and cooling in addition manual or automatic changeover and indoor fan control.
- 4. Crankcase Heater Kit:
 - Shall provide anti-floodback protection for low-load cooling applications.
- 5. Economizer for 2-stage operation:
 - (Horizontal and Vertical with Jade Honeywell W7220 controller, Honeywell communicating actuator, and dry bulb sensor. (Contact MicroMetl Customer Service at 1-800-662-4822 to order.)
 - NOTE:** The enhanced dehumidification feature on high stage cooling does not support use of an economizer.
 - a. Economizer controls capable of providing free cooling using outside air.
 - b. Equipped with low leakage dampers not to exceed 3% leakage, at 1.0 IN. W.C. pressure differential.
 - c. Spring return motor shuts off outdoor damper on power failure.

GUIDE SPECIFICATIONS (CONT)

6. Electric Heaters:
 - a. Electric heater shall be available as a field-installed option.
 - b. Heater elements shall be open wire type, adequately supported and insulated with ceramic bushings.
 - c. Electric heater packages must provide single point power connection capability.
7. Filter Rack Option or Kit:

Shall provide filter mounting for downflow applications. Offered as an accessory.
8. Flat Roof Curb Kit:

Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer's instructions.
9. Low Ambient Package Kit:

Shall consist of a solid-state control and condenser coil temperature sensor for controlling condenser-fan motor operation, which shall allow unit to operate down to 0°F (-17.7°C) outdoor ambient temperature when properly installed.
10. Manual Outdoor Air Damper Kit:

Package shall consist of damper, birdscreen, and rainhood which can be preset to admit outdoor air for year-round ventilation.
11. Square-To-Round Duct Transitions Kit (24-48 size):

Shall have the ability to convert the supply and return openings from rectangular to round.
12. Cabinet air leakage of 2.0% or less at .5 in. W.C. when tested in accordance with ASHRAE standard 193. Available as a factory installed option.
13. Dual Point Electric Heaters Kit:

Allows you to power the electric heater and unit contactor separately by having two individual field power supply circuits connected respectively.

